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County Council of Stirling.

REPORT

(for the Year 1919, together with brief Survey
for the Years 1915-1918)

TO THE

COUNTY COUNCIL AND DISTRICT COMMITTEES.

ALSO REPORTS TO THE TOWN COUNCILS OF
BRIDGE OF ALLAN AND DENNY AND DUNIPACE.

BY

T. ADAM, M.A., M.D., D.P.H.CAMB.,

MEDICAL OFFICER OF HEALTH.

STIRLING :

M'INTYRE & PEARSON, PRINTERS, 9 BARNTON STREET.

1920.

MEDICAL RESEARCH

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N O T E.

The present Report differs from all the preceding Annual Reports in that it not only deals with the public health work of the County for a single year, 1919, but also takes note of the outstanding features during the four preceding years. These were the strenuous years of the war, and owing to the multiplication of the duties of the public health departments and because of the war conditions generally, the Local Government Board issued a Memorandum in which it was stated that they would not expect a continuance of the Annual Reports during the war.

A feature of special note for practically the whole of the war period was the very low incidence of the notifiable infectious diseases, a circumstance very fortunate indeed in that it enabled all the cases of infectious disease arising among the military to be treated at the hospitals of the Local Authorities.

T. ADAM.

COUNTY BUILDINGS,
STIRLING, November, 1920.

In a Circular, dated 22nd December, 1919, the Scottish Board of Health require that Annual Reports by Medical Officers shall contain :—

- a. A general account of influences and conditions injurious or dangerous to the health of the district, and of the measures that in his opinion should be adopted for its improvement.
- b. A statement of the general enquiries he has made during the year, and of any special enquiries as to sanitary matters.
- c. A general statement of any matters as to which he has given advice or granted certificates, including any action as to offensive trades.
- d. A specific account of the administration of the Factory and Workshop Act, 1901, in workshops and work-places, in terms of Section 132 of that Act.
- e. An account of any proceedings under the Housing (Scotland) Acts, 1890-1919, dealing specifically with (1) the sufficiency and habitability of working-class dwellings; and (2) the action taken where instances of overcrowding have been ascertained or suspected.
- f. A statement showing whether any conditions have arisen or are expected to arise pointing to the expediency of a town-planning scheme for the proper control of further development.
- g. An account of any action taken under the Rivers Pollution Prevention Acts.
- h. An account of the hospital accommodation available for persons suffering from infectious disease (including the means provided for the conveyance of such persons), and of the houses of reception, with observations on the furnishing, maintenance, administration, and adequacy of such accommodation, etc.
- i. An account of the premises with necessary apparatus and attendance available for the destruction or disinfection of infected articles (including the means for the conveyance and return of such articles), also of other processes of disinfection in use, with observations on the adequacy of such arrangements and processes.
- j. An account of the action taken to prevent the outbreak and spread of infectious disease.

- k. A statement of the facilities available for the treatment of persons suffering from venereal diseases, with recommendations as to any further measures that might usefully be taken for dealing with these diseases in the Local Authority's area.
- l. A statement as to the causes, origin, and distribution of diseases within the district, and the extent to which the same have depended on or have been influenced by conditions capable of removal or mitigation.
- m. A statement of the measures adopted for the administrative control of tuberculosis, with recommendations as to any further measures that might usefully be put in force by the Local Authority. (In cases where this work is being undertaken by the County Council in terms of Sec. 41 (3) of the National Insurance Act, 1913, the information under this heading should be given by the County Medical Officer.)
- n. A statement of the arrangements made under the scheme of maternity service and child welfare.
- o. A report on the working of the Notification of Births Act, 1907. (This applies to areas where a scheme of maternity service and child welfare has not yet been carried into operation.)
- p. An account of the arrangements made for the carrying out of the Regulations under the Public Health (Regulations as to Food) Act, 1907, with a statement of the action taken under these Regulations.
- q. An account of the arrangements for the inspection of meat at slaughter-houses, shops, and elsewhere throughout the district.
- r. An account of any proceedings under the Sale of Food and Drugs Acts.
- s. An account of any proceedings under the Rag Flock Act, 1911.
- t. A tabular statement, in such form as the Scottish Board of Health may from time to time direct (1) of the cases of infectious disease notified in the district, and (2) of the infantile mortality within the district.

On this occasion the Board also desire the Medical Officer of Health to give a brief survey of the sanitary work carried out and the statutory proceedings taken during the years of the war when the regular reports were in abeyance.

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REPORT.

METEROLOGICAL RETURNS.

Since my last Annual Report — that for 1914 — was published, I have with deep regret to record the death of the Rev. Mr Macdonald, of Buchlyvie, one of the gentlemen who have continued year after year to send me notes on their meteorological observations.

Unfortunately, the Rev. Mr Moyes of Strathblane has not been able to send me records for 1919, but Mr Ballantine of Laurieston has very kindly forwarded the following interesting notes for the year 1919, together with a summary for the years 1915-1918.

RAINFALL AT LAURIESTON.

	Total Depth.	Greatest fall in 24 hours.	No. of days on which .01 or more rain fell.
January	3.29	.69	1st 19
February	1.69	.66	15th 11
March	2.76	.62	26th 12
April	2.04	.93	15th 9
May ... ..	.72	.27	17th 6
June... ..	2.27	.52	12th 14
July... ..	1.13	.52	31st 5
August... ..	2.48	.72	25th 11
September	2.60	.50	25th 15
October ... ..	.93	.45	23rd 8
November... ..	4.83	1.10	24th 18
December... ..	4.78	.60	28th 22
Total	29.52		150
1918	36.83		195
Decrease	7.35		45

Bonnybridge Road Experimental Station :—Rainfall, 1919, 32.09 inches; do., 1918, 40.99 inches; decrease, 8.90.

From the foregoing figures it will be seen that the rainfall for 1919 falls short of the previous year by nearly $7\frac{1}{2}$ inches, and is $6\frac{1}{2}$ inches below the average fall of the district; while at Carmuir's Road experimental station the depth is nearly 9 inches below that of 1918. January had a fair average fall with 19 wet days, but all the other months from February to October had much less than the average. May was the

driest month, closely followed by October; while the wettest months were those of November and December. But owing to the fact that dry weather predominated during the summer and autumn, the extra fall in the end of the year did not bring the year's total up to anything like a normal amount.

As to the character of the weather in the several months, in January the New Year holidays were dry and clear. Frosty mornings occurred frequently in the first half of the month, generally giving way to rain later in the day. The rest of the month was open and wet.

February was for the most part dry, with only 11 wet days. Its chief feature, however, was its excessive coldness, it being the coldest February since 1900. This circumstance was not due to extremely keen frosts or exceptionally low reading of the thermometer, but just to an unusually persistent degree of considerable cold. The first three weeks of the month were absolutely sunless.

March had a fair amount of moisture, and, like the previous month, was also very cold, although there were no phenomenally low readings.

April was in striking contrast to the previous month. While the opening days were cold (April lingering in the lap of March), the temperature for the next three weeks was above normal. Good Friday and Easter Sunday were both exceedingly warm and fine. Snow and sleet, however, fell in the closing days of the month. The month was responsible for producing the greatest extremes in the barometric pressure for the year, the lowest reading being $28\frac{1}{2}$ inches on the 14th, and the highest $30\frac{1}{2}$ inches on Easter Sunday.

May was the driest month of the year, with only six days on which very small quantities of rain fell; and although easterly winds were in the majority, the month was warm throughout.

The weather of June was of a more showery type, but owing to the moisture being precipitated in small quantities, it did little to counteract the dry period in May. The month was rather cool, although the winds were mostly westerly.

Dry weather continued throughout July. St Swithin's Day was a day of brilliant sunshine, and according to tradition the weather should have continued so till end of August; but refreshing rain fell to the extent of one quarter of an inch on the 18th, and again to the extent of half an inch on the last day of the month. One gratifying feature of the month, so far as vegetation was concerned, was that although it was dry, it was never excessively hot.

The dry period of July was continued during the first twelve days of August, after which the weather became more variable, and fully two inches of rain fell on the last half of the month.

The weather of September resembled that of June in being of a showery type. One-half of its 30 days had more or less rain, while the other half was dry. The month having also a good deal of bright sunshine and drying winds, was quite a good harvest month.

October was the second driest month of the year, and but for the fact that it brought a continuance of the former dry period, it was otherwise an ideal autumn month. In the last week the wind veered to north-east, and the temperature fell, betokening a break-up of the long period of fine weather.

With the advent of November, the dry, pleasant weather experienced through the summer and autumn disappeared. North-east winds continued, with small quantities of rain, for the first eleven days, after which snow fell to a considerable depth, followed by an Arctic snap of intense frost on the 14th, sending the thermometer down to within 4 degrees of zero. The intense frost did much damage to water pipes, potatoes and other tender roots stored in outhouses, but fortunately the good covering of snow preserved everything under the sod. The frost broke up on the 17th, and the last two weeks of the month brought alternation of frost and snow and considerable falls of rain. The chief feature of the month was the intense cold, it being one of the coldest Novembers on record.

It is often noticed that a spell of such intense frost brings in its train a continuance of changeable atmospheric conditions, and this was largely the case in the weather that followed. December was almost entirely wet, with only nine days on which no measureable amount of rain fell, yet there was no specially heavy fall on any one day. The weather being mostly showery, rather than days of continuous rain, there were thus frequent "blinks" of sunshine. The temperature of the month was rather above the average. Sandwiched between days of rain and sleet, it was surprising that Christmas Day, with a touch of frost, was so fine and bright and clear.

Excepting for a deficiency of rain in the early summer months, which caused anxiety as to water supplies and retarded vegetation, the weather of the past year has on the whole been good, and the large amount of bright sunshine throughout has made the year 1919 to stand out as one of the sunniest on record.

SUMMARY OF NOTES, 1915-1918.

- 1915 Rainfall, 32.24 inches; number of days on which .01 rain fell, 150; rainfall $5\frac{1}{2}$ inches less than the previous year, and 4 inches below the average of the district.
- 1916 Rainfall, 45.48 inches; 200 wet days; rainfall 13 inches more than last year, and 9 inches above the average. This was the wettest year since 1893, and the third wettest within the last 40 years (the time the records go back). September was the best month of the year, and largely saved the harvest.
- 1917 Rainfall, 34.67 inches, being 11 inches less than 1916, and about 2 inches below the average. February was the driest month, followed by September and April. August and November were the two wettest months.
- 1918 Rainfall, 36.83 inches. The total fall was just the average for the district. January, February, September and October wet; March, April, and June, dry; the other months about the average.

Table I.—ANNUAL RAINFALL—1915-1918, AND MONTHLY RAINFALL FOR 1919.

STATION.	OBSERVER.	RAIN GAUGE.				1915	1916	1917	1918	1919																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Diameter.	Height above Ground.	Height above Sea-level.	Jan.					Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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VITAL STATISTICS.

Population.—The census report for the year 1911 gave the population of the County (exclusive of Burghs) as 79,607; the population of the Central District then being 26,203, of the Eastern District, 41,745, and of the Western District, 11,659.

For the year 1919, the Registrar-General estimates the population of the Central District at 30,127, of the Eastern District, 41,109, and of the Western District, 11,424, giving a total of 82,600 for the County—an increase of 3053 over the census year.

Birth Rates.—In the year 1914 the birth rate was 28.2—a fairly average pre-war rate for the County. In 1915, as will be seen from Table II., it fell to 26.0; in 1916, to 23.4, and in 1917 to 21.1. In 1918 it recovered a little, and in 1919 it was 22.2, the highest rate being in the Eastern District, where it had risen to 24.5. The rate for Scotland as a whole for 1919 was 21.7.

Death Rates.—Table III. shows the deaths and death rates for the three Districts and the County for the years 1915-19. The rate for the County in 1919 was 11.5, which is about 1.5 per 1000 below the average for the previous ten years, and is in fact the lowest death rate on record for the County during the past 30 years. The District chiefly contributing to this low rate was the Central, the rate in that District being only 9.6, which is also the lowest on record for that District.

Table II.—BIRTHS AND BIRTH-RATES PER 1000 OF POPULATION WITHIN THE COUNTY OF STIRLING,
EXCLUSIVE OF BURGHS, 1915-1919.

District	1915		1916		1917		1918		1919	
	Births	Birth-Rates	Births	Birth-Rates	Births	Birth-Rates	Births	Birth-Rates	Births	Birth-Rates
Central ...	784	28.2	688	24.3	646	22.3	665	22.4	669	22.2
Eastern ...	1088	26.7	1007	24.7	876	21.4	914	22.2	1009	24.5
Western ...	207	18.3	190	16.8	190	16.7	178	15.5	156	13.7
County ...	2079	26.0	1885	23.4	1712	21.1	1757	21.3	1834	22.2

Table III.—DEATHS AND DEATH-RATES PER 1000 OF POPULATION WITHIN THE COUNTY OF STIRLING,
EXCLUSIVE OF BURGHS, 1915-1919.

District	1915		1916		1917		1918		1919	
	Deaths	Death-Rates	Deaths	Death-Rates	Deaths	Death-Rates	Deaths	Death-Rates	Deaths	Death-Rates
Central ...	344	12.4	299	10.6	309	10.7	360	12.1	289	9.6
Eastern ...	547	13.4	497	12.2	490	12.0	560	13.6	499	12.1
Western ...	181	16.0	154	13.6	143	12.6	165	14.4	162	14.2
Whole County	1072	13.4	950	11.8	912	11.6	1085	13.2	950	11.5

VACCINATION (SCOTLAND) ACT, 1907.

The following table gives a note of the number of declarations of conscientious objection to Vaccination, under the above Act, for the years 1915-1919.

The total number of children born during that period in the Districts of the County was 9267, and the total number of children on whose account these declarations were made was 4190, so that at the end of 1919 nearly one-half of the children up to five years of age in the County were unvaccinated.

Table IV.—TABULAR STATEMENT OF CONSCIENTIOUS OBJECTIONS TO VACCINATION, FOR THE YEARS 1915-1919.

CENTRAL DISTRICT.	1915	1916	1917	1918	1919	EASTERN DISTRICT.	1915	1916	1917	1918	1919	WESTERN DISTRICT.	1915	1916	1917	1918	1919
Bonnybridge	19	20	23	14	8	Airth ...	13	12	24	12	—	Balfron ...	1	3	—	1	—
Canbusbarrow	8	4	7	8	7	Bonnybridge	55	22	38	36	44	Baldernock	2	2	4	—	—
Denny ...	3	4	2	7	—	Falkirk ...	80	62	70	51	67	Buchanan ...	1	—	—	—	—
Dunipace ...	7	1	5	6	3	Grangemouth	125	140	111	121	128	Campsie ...	31	36	33	34	36
Gargunnoch	2	1	—	1	3	Larbert ...	131	116	118	88	126	Drymen ...	3	1	2	3	2
Haggs ...	52	62	51	65	39	Muiravonside	105	85	87	102	92	Finty ...	2	—	—	1	1
Kilsyth ..	43	41	30	43	32	Slamannan...	58	69	58	47	69	Killearn ...	—	2	—	—	—
Kippen ...	—	1	—	—	—							Strathblane	—	2	—	1	—
Logie... ..	4	4	3	2	3												
St. Ninians ...	182	157	145	141	155												
Stirling ...	—	2	2	1	1												
Total ...	320	291	263	288	251	Total ...	567	506	506	457	526	Total ...	40	46	39	40	39

INFECTIOUS DISEASE NOTIFICATIONS.

Table V. gives the incidence of infectious disease over all the parishes of the County for the last five years. In this Table I have taken account only of the ordinary notifiable infectious diseases, and have left out the diseases more recently made notifiable, e.g., Malaria, Trench Fever, etc. The diseases included are Smallpox, Diphtheria, Erysipelas, Scarlet Fever, Typhus Fever, Enteric Fever, Continued Fever, Puerperal Fever, and Cerebro-Spinal Fever.

In the year 1913 the total notifications in the County rose to 912, this being a record figure, so far as County reports show, and in 1914 the figure was only a little less—904. In 1915 (the first year in Table V.) the notifications reached a total of 1034, beating the previous record by 122, but in 1916 the figure fell to 723, and in 1917 to 285, which is the lowest yet reached since notification began. The year 1918 was also remarkably free from infectious disease, there being only 303 cases, and in 1919 there was an increase to 473, which is still below the average. Since the end of the year, however, it looks as if we might expect a very busy time, so that very probably the figure for 1920 may reach the 1916 level, or even exceed it.

Table VI. shows diagrammatically the relative incidence of infectious diseases in the County from 1892 to 1919 (inclusive), the chief factor being cases arising from Scarlet Fever. It will be noticed that the waves of incidence vary very much, the crests being higher during the years 1893 and 1894 than during 1899 and 1900. In 1909 another very sharp crest was formed with a rapid fall, and for the three years 1913, 1914, and 1915, there is also a very high incidence. Following the wave, it will be seen that during 1919 a rise is indicated, so that we may anticipate a further high crest to follow. It was very fortunate that infectious disease fell so low during 1917 and 1918, as at that time it was necessary to accommodate in the fever hospitals quite a large number of cases arising among the military.

It should be explained that although the actual notification **figures** for 1913 and 1915 are the highest on record, the notification **rates** for these years, owing to increase of population, are less than in certain previous years, as shown in Table VI.

Table V.—INFECTIOUS DISEASE NOTIFICATIONS IN THE COUNTY OF STIRLING
(EXCLUSIVE OF TUBERCULOSIS AND CERTAIN INFECTIOUS DISEASES WHICH
HAVE QUITE RECENTLY BECOME NOTIFIABLE), FOR THE YEARS 1915-1919.

NUMBER OF NOTIFICATIONS.

CENTRAL DISTRICT.

Parish.	1915	1916	1917	1918	1919
Denny ...	41	54	10	22	62
Arnprior ...	4	0	3	0	1
Gargunnoch ...	2	6	0	1	1
Kilsyth .	31	13	13	3	30
Kippen ...	3	7	8	7	7
Logie ...	21	9	9	3	9
St. Ninians ...	87	144	49	25	142
Stirling... ..	—	6	1	0	3
Total of Central District	189	239	93	61	255

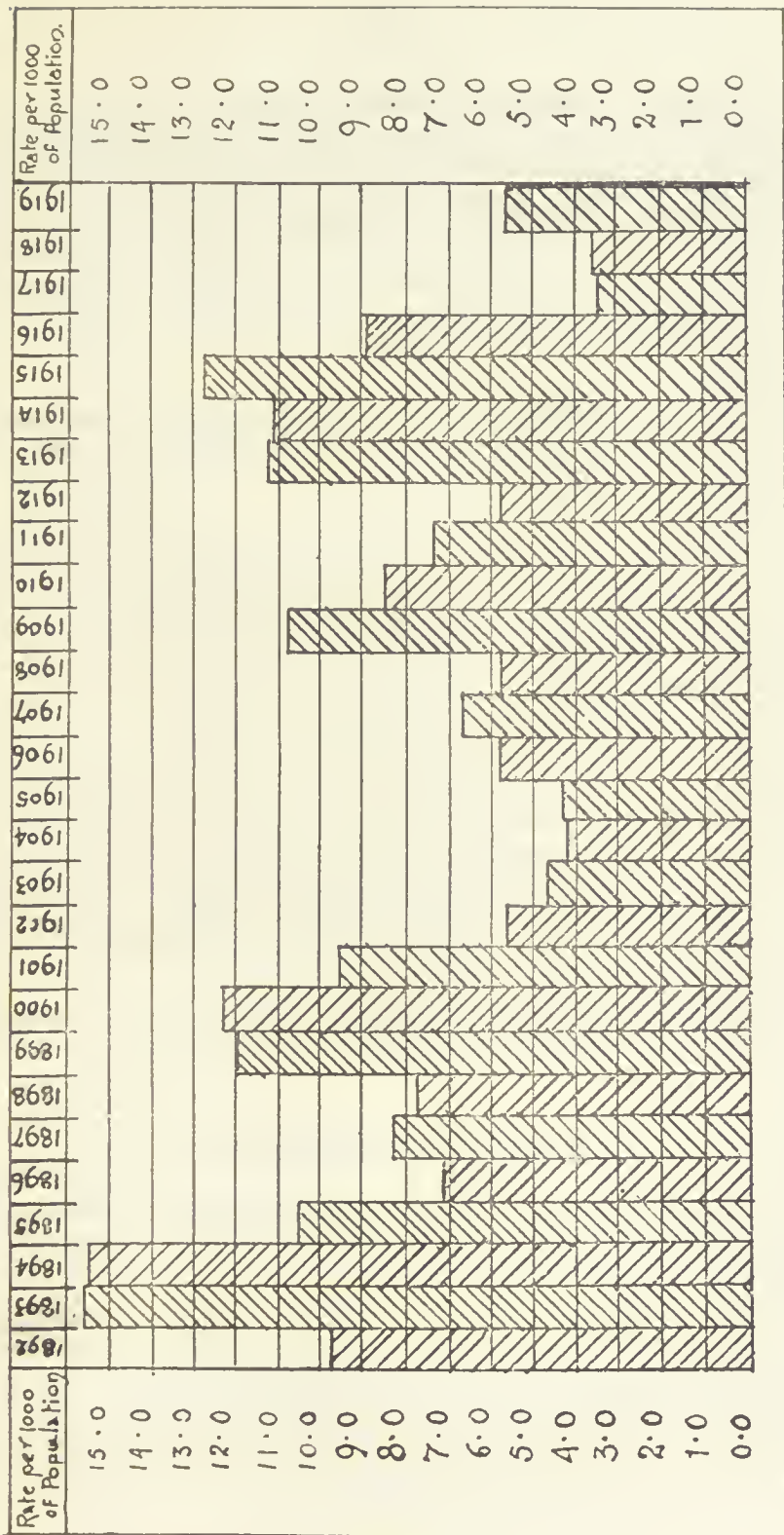
EASTERN DISTRICT.

Airth ...	26	23	8	27	8
Falkirk..	156	106	41	82	90
Grangemouth ...	148	73	44	37	18
Larbert... ..	256	119	40	29	62
Muiravonside ...	169	46	10	26	10
Slamannan ...	29	46	22	32	8
Total of Eastern District	784	413	165	233	196

WESTERN DISTRICT.

Baldernock ...	1	3	1	0	0
Balfron ...	0	8	0	0	3
Buchanan ...	2	3	0	0	0
Campsie ...	40	25	16	7	14
Drymen ...	4	16	2	1	1
Fintry..	0	1	0	0	0
Killearn ...	8	1	5	0	2
Strathblane ...	6	14	3	1	2
Total of Western District	61	71	27	9	22
Total for County	1034	723	285	303	473

Table VI.—DIAGRAM OF NOTIFICATIONS OF INFECTIOUS DISEASE, 1892-1919.



Schools in relation to Infectious Disease. — During the years 1915 to 1919, closure of Schools or departments of Schools was resorted to as seldom as possible. Besides being a hindrance to education, I have not found that such closure is very effective in checking spread of infectious disease. In fact, while children are attending school they are under the observation of their teacher, who would immediately exclude any child with suspicious symptoms, and in this way teachers can be of great assistance in staying an epidemic.

During the Influenza epidemics of the spring and autumn of 1918 and the spring of 1919, school closure was tried in about seventy instances all over the County, but so far as I could ascertain, it had little effect.

Towards the end of the epidemic I was told by a brother Medical Officer of Health that in part of his area he had tried School closure on a large scale, and that in another part of his area he left the schools severely alone. There was no apparent difference in the number of cases which occurred in the two districts.

As concerns children excluded from school on account of infectious disease, the procedure has been that the Headmaster sent me a list of children excluded from time to time because of their suffering from or being in contact with infectious disease, and at the end of the School year I gave a certificate that the children mentioned on the lists had been so excluded. The certificate was then attached to the lists and forwarded along with other documents when the claim for Government Grant was made.

These certificates are no longer required, as the method of reckoning school grant is quite altered.

INFANTILE MORTALITY.

For convenience of reference, I give a table showing the number of Births, Birth Rates, and the Infantile Death Rate (deaths under one year per 1000 births) for each year right back to 1891.

For the County, it will be seen that although the Infantile Death Rate has gone on rising and falling from year to year, still the tendency is towards a distinct fall. Thus, for the first ten years of the table, the average rate was approximately 110, and for the next ten years it was 97, while that for the last nine years was only 90.

Table VII. — BIRTHS AND BIRTH-RATES AND DEATHS UNDER ONE YEAR PER 1000 BIRTHS, 1891-1919.

Year.	CENTRAL DISTRICT.			EASTERN DISTRICT.			WESTERN DISTRICT.			COUNTY.		
	No. of Births	Birth-rate.	Deaths under 1 Year per 1000 Births.	No. of Births	Birth-rate.	Deaths under 1 Year per 1000 Births.	No. of Births	Birth-rate.	Deaths under 1 Year per 1000 Births.	No. of Births	Birth-rate.	Deaths under 1 Year. Deaths under 1000 Births.
1891	436	29.309	128	968	41.695	105	313	25.098	143	1717	—	203
1892	467	30.32	66	1490	40.913	93	358	28.69	64	2315	36.0	198
1893	507	33.09	96	1507	40.90	130	312	25.09	134	2326	36.0	288
1894	474	29.234	101	1484	38.75	105	316	25.242	101	2374	33.5	237
1895	524	30.531	80	1535	39.393	104	321	25.818	99	2380	34.7	235
1896	531	30.763	65	1575	39.902	100	345	27.403	104	2451	35.4	229
1897	566	32.046	100	1586	38.933	136	236	26.508	95	2478	32.5	305
1898	556	30.798	111	1635	39.364	126	270	22.080	114	2461	33.8	300
1899	592	31.487	103	1581	37.328	130	254	20.762	122	2427	33.1	298
1900	619	31.797	111	1695	38.895	121	281	23.261	117	2595	35.0	308
1901	665	34.358	112	1442	36.998	110	263	23.698	114	2370	34.1	265
1902	627	31.721	87	1399	35.153	97	268	23.159	78	2294	32.2	212
1903	651	32.544	84	1380	35.150	95	245	21.530	106	2286	32.2	214
1904	604	31.846	108	1317	33.270	113	251	21.048	59	2232	31.0	236
1905	740	34.758	87	1384	35.050	94	249	21.401	116	2373	32.8	225
1906	721	32.720	124	1273	32.218	102	239	20.577	92	2233	30.5	243
1907	792	35.153	77	1231	30.561	85	240	20.495	95	2263	30.4	183
1908	845	35.957	131	1308	31.381	110	215	18.531	111	2368	30.8	278
1909	844	34.840	100	1247	30.016	66	267	22.636	48	2253	30.4	179
1910	796	32.058	121	1252	29.914	86	231	19.453	56	2379	29.2	218
1911	846	32.082	107	1206	28.673	100	235	20.128	85	2287	28.5	230
1912	797	29.557	99	1155	27.679	88	202	17.361	54	2154	26.9	192
1913	844	31.5	98	1173	28.8	104	237	20.8	68	2254	28.5	221
1914	845	31.2	101	1169	28.9	87	219	19.4	78	2233	28.2	204
1915	784	28.2	102	1088	26.7	98	207	18.3	82	2079	26.0	204
1916	688	24.3	74	1007	24.7	82	190	16.8	89	1885	23.4	151
1917	646	22.3	80	876	21.4	106	190	16.7	68	1712	21.1	158
1918	665	22.4	69	914	22.2	84	178	15.5	51	1757	21.3	132
1919	669	22.2	84	1009	24.5	88	156	13.7	141	1834	22.2	167

CENTRAL DISTRICT.

**Table VIII.—RETURN OF INFANTILE MORTALITY FOR THE YEAR
ENDING 31ST DECEMBER, 1919.***Net Deaths from stated causes at various ages under 1 year of age.*

CAUSE OF DEATH.		Under 1 Week	1, and under 2 Weeks	2, and under 3 Weeks	3, and under 4 Weeks	Total under 4 Weeks	4 Weeks, and under 3 Months	3, and under 6 Months	6, and under 9 Months	9, and under 12 Months	Total Deaths under 1 Year
All Causes	{ Certified ...	17	1	2	2	22	7	9	9	9	56
	{ Uncertified	...	...	...	...	...	...	...	...	...	...
Smallpox ... ..		...	...	...	...	...	...	...	...	...	...
{ Chickenpox ... ..		...	...	...	...	...	...	...	...	...	...
{ Measles ... ..		...	...	...	...	...	...	...	...	...	...
{ Scarlet Fever ... ..		...	...	...	...	...	...	...	...	...	...
{ Whooping Cough ... ..		...	...	...	...	...	...	1	2	...	3
{ Diphtheria and Croup ... ..		...	...	...	...	...	...	...	...	...	...
{ Erysipelas ... ..		...	...	...	...	...	...	...	...	...	...
{ Tuberculous Meningitis ... ..		...	...	...	...	...	...	...	...	1	1
{ Abdominal Tuberculosis ... ..		...	...	...	...	...	...	...	...	1	1
{ Other Tuberculous Diseases ... ..		...	...	...	...	...	...	...	...	...	...
{ Meningitis (not Tuberculous) ... ..		...	...	...	...	...	...	1	...	1	2
{ Convulsions		1	...	...	...	1	...	...	1	...	2
{ Pneumonia (all forms) ... ..		...	...	...	...	...	1	2	2	1	6
{ Bronchitis ... ..		...	...	...	...	...	1	1	1	...	3
{ Laryngitis ... ..		...	...	...	...	...	...	...	...	...	...
{ Diarrhoea and Enteritis ... ..		...	...	...	...	...	1	2	2	2	7
{ Other Digestive Diseases ... ..		...	...	...	1	1	1	...	1	...	3
{ Congenital Malformations		1	...	...	...	1	...	...	...	...	1
{ Premature Birth		8	...	1	1	10	...	...	...	...	10
{ Atrophy, Debility, and Marasmus		3	...	1	...	4	2	1	...	...	7
{ Atelectasis ... ..		...	...	...	...	...	...	...	...	...	...
{ Injury at Birth ... ..		...	...	...	...	...	...	...	...	...	...
{ Suffocation, overlying ... ..		...	...	...	...	...	...	...	...	...	...
{ Syphilis ... ..		...	...	...	...	...	1	...	...	...	1
{ Rickets ... ..		...	...	...	...	...	...	...	...	...	...
{ All other Causes		4	1	...	...	5	...	1	...	3	9
Total		17	1	2	2	22	7	9	9	9	56

Net Births in the Year

{ Legitimate, 634.
{ Illegitimate, 35.

Net Deaths in the Year

{ Legitimate Infants, 53.
{ Illegitimate Infants, 3.

EASTERN DISTRICT.

Table IX.—RETURN OF INFANTILE MORTALITY FOR THE YEAR
ENDING 31ST DECEMBER, 1919.

Net Deaths from stated causes at various ages under 1 year of age.

CAUSE OF DEATH.			Under 1 Week	1, and under 2 Weeks	2, and under 3 Weeks	3, and under 4 Weeks	Total under 4 Weeks	4 Weeks, and under 3 Months	3, and under 6 Months	6, and under 9 Months	9, and under 12 Months	Total Deaths under 1 Year
All Causes	Certified ...	31	4	5	1	41	13	14	9	12	89	
	Uncertified	...	..	...	...	...	...	...	...	...	...
{	Smallpox ... ..	...	...	...	...	...	...	...	...	...	...
	Chickenpox ... ..	...	...	...	...	...	...	...	...	...	...
{	Measles ... ..	...	...	...	...	...	...	...	2	...	2
	Scarlet Fever ... ..	...	...	...	...	...	...	...	...	...	...
{	Whooping Cough ... ..	...	...	...	...	...	3	3	...	4	10
	Diphtheria and Croup	...	...	...	...	...	...	...	...	2	2
{	Erysipelas ... ..	...	...	...	...	...	...	...	...	...	...
	Tuberculous Meningitis	...	...	...	...	...	...	...	...	1	1
{	Abdominal Tuberculosis	...	...	...	...	...	...	...	...	...	...
	Other Tuberculous Diseases	...	...	...	...	...	...	...	...	...	...
{	Meningitis (not Tuberculous)	...	...	...	...	...	...	1	...	...	1
	Convulsions ... ..	...	1	1	...	2	...	...	1	1	4
{	Pneumonia (all forms)...	..	...	1	1	2	3	3	4	3	15
	Bronchitis ... ..	...	...	...	...	...	1	1	1	1	4
{	Laryngitis ... ..	...	...	...	...	...	...	...	...	...	...
	Diarrhoea and Enteritis	...	1	..	...	1	2	4	...	...	7
{	Other Digestive Diseases	1	...	...	...	1	1	...	...	...	2
	Congenital Malformations	1	1	...	...	2	1	...	...	...	3
{	Premature Birth ...	21	1	1	...	23	...	...	...	...	23
	Atrophy, Debility, and Marasmus	5	...	2	...	7	..	2	...	...	9
{	Atelectasis ... ..	...	...	...	...	...	1	...	...	...	1
	Injury at Birth...	...	...	...	...	...	...	...	...	...	...
{	Suffocation, overlying...	...	...	...	...	...	...	...	...	...	...
	Syphilis ... ..	...	...	...	...	...	...	...	...	...	...
{	Rickets ... ..	...	...	...	...	...	...	...	...	...	...
	All other Causes ...	3	..	...	...	3	1	...	1	...	5
Total			31	4	5	1	41	13	14	9	12	89

Net Births in the Year

(Legitimate, 945.
(Illegitimate, 64.

Net Deaths in the Year

(Legitimate Infants, 84
(Illegitimate Infants, 5.

WESTERN DISTRICT.

Table X.—RETURN OF INFANTILE MORTALITY FOR THE YEAR
ENDING 31ST DECEMBER, 1919.*Net Deaths from stated causes at various ages under 1 year of age.*

CAUSE OF DEATH.		Under 1 Week	1, and under 2 Weeks	2, and under 3 Weeks	3, and under 4 Weeks	Total under 4 Weeks	4 Weeks, and under 3 Months	3, and under 6 Months	6, and under 9 Months	9, and under 12 Months	Total Deaths under 1 Year
All Causes	Certified	6	2	2	2	12	3	3	2	2	22
	Uncertified	...	...	...	...	...	...	...	...	...	...
{ Smallpox ... ..		...	...	...	...	...	...	...	...	...	...
{ Chickenpox ... ..		...	...	...	...	...	...	...	...	...	...
{ Measles ... ..		...	...	...	...	...	...	...	...	...	...
{ Scarlet Fever ... ..		...	...	...	...	...	...	...	...	...	...
{ Whooping Cough ... ..		...	...	...	1	1	...	...	...	...	1
{ Diphtheria and Croup ... ..		...	...	...	...	...	...	...	...	...	...
{ Erysipelas ... ..		...	...	...	...	...	...	...	...	...	...
{ Tuberculous Meningitis ... ..		...	...	...	...	...	...	...	...	...	...
{ Abdominal Tuberculosis ... ..		...	...	...	...	...	...	...	1	...	1
{ Other Tuberculous Diseases ... ..		...	...	...	...	...	...	...	...	...	...
{ Meningitis (not Tuberculous) ... ..		...	...	...	...	...	...	...	...	...	...
{ Convulsions ... ..		...	...	...	...	...	...	...	...	...	...
{ Pneumonia (all forms) ... ..		...	...	1	...	1	...	...	1	1	3
{ Bronchitis ... ..		...	1	1	...	2	...	3	...	1	6
{ Laryngitis ... ..		...	...	...	...	...	...	...	...	...	...
{ Diarrhœa and Enteritis ... ..		...	...	...	...	...	1	...	...	...	1
{ Other Digestive Diseases ... ..		...	...	...	...	...	...	...	...	...	...
{ Congenital Malformations ... ..		...	...	...	...	...	...	...	...	...	...
{ Premature Birth		2	...	...	...	2	...	...	...	...	2
{ Atrophy, Debility, and Marasmus		1	1	...	...	2	...	...	...	...	2
{ Atelectasis ... ..		...	...	...	...	...	...	...	...	...	...
{ Injury at Birth		1	...	...	...	1	...	...	...	...	1
{ Suffocation, overlying		1	...	...	...	1	...	...	...	...	1
{ Syphilis ... ..		...	...	...	...	...	1	...	...	...	1
{ Rickets ... ..		...	...	...	...	...	...	...	...	...	...
{ All other Causes		1	...	...	1	2	1	...	...	...	3
Total		6	2	2	2	12	3	3	2	2	22

Net Births in the Year

{ Legitimate, 148.
{ Illegitimate, 8.

Net Deaths in the Year

{ Legitimate Infants, 21.
{ Illegitimate Infants, 1.

NOTIFICATION OF BIRTHS ACTS.

During the latter part of the war the Local Government Board were very urgent on Local Authorities formulating Schemes of Maternity Service and Child Welfare for their areas. The need of such schemes was unquestioned, but the difficulty was to get adequate and properly qualified staffs, as the Army made such calls upon the country's medical and nursing services.

Various memoranda were issued by me on the subject which culminated in a proposal to co-ordinate the various nursing and medical services in the County. Since the end of the year such a scheme of co-ordination has been drawn up, but this will be dealt with in the Report for 1920.

When Notification of Births became compulsory under the Act of 1915, all medical men and midwives in the County were supplied with a book of stamped notification cards, and the terms of the Act were brought to their notice. The number of notifications received has somewhat fallen short of the actual number of births, but, in the absence of a proper scheme, I have not considered it necessary to press for all the notifications omitted.

From the notifications received during 1919, I find that about one-half of the number of live births were notified by medical men, and the other half by midwives. With regard to the notification of Still Births, 66 per cent. of these were attended by medical men, the remaining 34 per cent. being attended by midwives. Probably the reason for the larger percentage of still births being attended by medical men was that in many such cases, if a midwife were in attendance, she would, very properly, call in a doctor.

MIDWIVES (SCOTLAND) ACT, 1915.

The following is a copy of my Annual Report to the Central Midwives Board for Scotland, as Medical Officer of Health of the Local Supervising Authorities of the Central, Eastern, and Western Districts of the County, and of the Burghs of Denny and Bridge of Allan, for the year 1919.

“ The number of certified midwives at present practising within the areas of the above Local Supervising Authorities is fifty-seven, as detailed in the List already sent to the Board. Some of these midwives practise in more than one area, so that the total of the numbers of midwives practising in each area exceeds the actual number of midwives given above. Thus, in the Central District there are 30; in the Eastern District, 32; in the Western District, 3; and in the Burgh

of Denny, 5. No notification of practice has been received from the Burgh of Bridge of Allan.

“ The following table shows the number of notifications (as prescribed by the Board's Rules) which I have received from midwives for each of the above areas :—

District or Burgh.	Medical Assistance Sought.	Still Births.	Death of Mother or Child.	Laying out of Dead Body.	Liability to be a source of Infection	Artificial Feeding.
Central District,	9	5	—	—	1	—
Eastern District,	8	3	—	5	2	—
Western District,	—	—	—	—	—	—
Total of Districts,	17	8	—	5	3	—
Burgh of Denny,	—	1	—	—	—	—
Burgh of Bridge of Allan,	—	—	—	—	—	—

“ So far, I have not been able to give as much attention as I would like to the supervision of the midwives in the County. Before very long, however, I am in hopes that a Scheme of Joint Medical Services will be in operation in my area which would embrace the proper inspection and supervision of midwives.

“ During the year the School Nurses have on various occasions, at my request, made visits in connection with midwifery work.

“ In connection with the 17 cases in which medical assistance was sought by midwives, only one claim was made by a doctor for payment of his fee through the County Authority, and in this case there was no question of mileage. In the other sixteen cases payment was made direct by the people concerned, which is undoubtedly the preferable procedure.

“ Generally speaking, I have found the midwives in the County to be most careful and cleanly in their habits, and I must say that their standard of intelligence appears to me to be much above that of the average woman of their own class.”

THE PREVENTION AND TREATMENT OF VENEREAL DISEASE.

The comparatively recent report of the Royal Commission on Venereal Diseases brought home to the country the great frequency of this type of disease. For obvious reasons most of these cases were quite unknown unless to the patients and their medical advisers. During the war the incidence of venereal diseases following the usual rule was greatly increased. Fortunately, however, the scientific treatment of

cases was raised to a higher plane than ever before, and the hope of a thorough cure could be held out to most of the sufferers if they only used proper means.

In the circumstances the late Local Government Board very wisely took a strong line. Various Memoranda were issued urging upon Local Health Authorities to formulate Schemes on definite lines for dealing with cases arising within their areas. Recognising that it was a national as much as a local necessity that such diseases should be eradicated, the Government undertook to pay as a Grant 75 per cent. of all expenditure incurred by Local Authorities in carrying out approved Schemes. The Board, knowing that suitable Schemes could not be carried through by small Authorities, urged all Local Authorities to get into communication with a view to forming suitable combinations.

The matter was taken up with great enthusiasm in Stirlingshire, with the result that all the Local Authorities in the County, including the Burghs, agreed to a Scheme of treatment. The basis of the Scheme was to have a treatment centre in connection with Stirling Royal Infirmary and another in connection with Falkirk Infirmary, each of these being in a position to serve a very large neighbouring population.

The Directors of the above Infirmaries were approached with a view to their co-operation. The Directors of the Stirling Institution came into line almost at once, and an excellent centre was established. As to the Falkirk Infirmary there have been many difficulties which have not been able to be overcome as yet, but it is hoped that in the near future this fine Institution will also have an up-to-date clinic for dealing with cases of venereal disease.

As showing the useful work which has been accomplished at the Stirling Centre, I reproduce a report by Dr M'Farlan, and also a joint report by Mr Lupton and myself.

" STIRLINGSHIRE V.D. (i.e.) VENEREAL DISEASES JOINT COMMITTEE.

" Report by Dr M'Farlan, Medical Officer of Stirling Treatment Centre, for the period to 15th May, 1920 :—

"The treatment during this period has been carried on under not quite suitable conditions, but after the Treatment Centre is completed, and more suitable hours can be arranged for the patients, it is anticipated that the treatment will be more satisfactory, and that the number of patients will be increased. We have had to refuse any cases of Gonorrhœa sent to us, but these will be treated after the new Centre is in use. A difficulty has sometimes arisen in getting a complete

course of treatment carried out, as the patients fail to return. In addition to the number hereinafter stated as failing to return, there are a good many more who have not returned for a further blood test after treatment, although requested to do so. This difficulty may be gradually overcome as the patients come to realise more clearly the importance of continuing treatment until it is certain that a cure has been effected.

“ The following figures are applicable to the period from 20th April, 1919, to 25th June, 1920, but for practical purposes may be taken as representing the first year's work :—

1. Number of patients who attended—	males.....	40
	females.....	23
	Total.....	63
2. Number of Blood Tests taken		68
3. Number of Blood Tests giving positive results—		
	males.....	28
	females.....	17
	Total.....	45
4. Number of Salvarsan injections		205
5. Number of patients receiving complete treatment		15
6. Number of patients going to other Centres and details supplied		6
7. Number of patients still undergoing treatment...		6
8. Number of patients who have not yet completed treatment although requested to resume attendance, but some of whom have completed a first course of treatment		18
Total equal to number of positive blood tests		45

Of the foregoing the number of patients requiring
second course of treatment 3

“(Signed) P. F. M'FARLAN, M.B., Ch.B., F.R.C.S.E.

“Stirling, 15th July, 1920.”

“ STIRLINGSHIRE V.D. JOINT COMMITTEE.

“ Report by the County Medical Officer and Clerk to the Stirlingshire Joint V.D. Committee :—

"On the expiry of the first year's working of the Committee it may be useful to review the position.

" 1.—TREATMENT OF PATIENTS.—During the year ending 15th May, 1920, 68 blood tests were taken and 205 treatments given in addition to treatment of patients in Institutions outside the County. For further details see Report by Dr M'Farlan, Medical Officer of Treatment Centre.

" 2.—PUBLICITY AND EDUCATIONAL ARRANGEMENTS.—Three Lectures were given to Nurses, which were all well attended. A post-graduate course of instruction in the treatment of Venereal Diseases was arranged in Glasgow, and was attended by 22 Medical Men from the County. Leaflets and posters were forwarded to the Clerks of the Combining Authorities for use in their respective areas.

" 3.—REPORT BY NATIONAL SERVICE MEDICAL BOARD.—The first Report by the National Service Medical Board upon the Medical examination of the $2\frac{1}{2}$ million men enlisting during the last year of the War has now been issued, but there is not much guidance to be obtained from it, as it is stated (p. 33) that in the majority of cases Venereal Disease did not alter a man's grade, and very little evidence upon the prevalence of these diseases is therefore afforded by grading results. The principal figures for Venereal Diseases are as follows :—

pp. 87 and 101, West Midland Region.....	814 cases
Chart 1. (a), London Region	718 cases
p. 48, Liverpool—out of 2894 rejections.....	49 cases

These figures represent a small percentage of the total numbers examined.

" The outstanding feature of the statistics and charts is the much greater prevalence of these diseases among persons of alien origin, the percentage being from 3 to 5 times as high in the case of aliens as in the case of British-born recruits—pp. 30 and 39, and Charts I. and II.

" 4.—TREATMENT OF NON-INFECTIOUS CASES.—By circular letter from the Board of Health, dated 14th May, 1920, Local Authorities are now authorised to treat non-infectious cases. The reason given is the difficulty of distinguishing between communicable and non-communicable phases of the disease, but as the authority given is to treat all cases other than cases of general paralysis of the insane, which are usually treated in Asylums, it would appear that the scope of treatment is now to cover very much more than those cases on the border line between infectious and non-infectious.

" The first points for consideration by the Committee are what steps can be taken to carry into effect the wider powers of treatment now given. Dealing in passing with the greater

prevalence of disease in the case of the alien population, it may be said that if, as may be assumed from the statistics and charts in the Report by the National Service Medical Board, there is a greater risk of infection from alien immigrants, drastic steps should be taken to stop this infection at its source by the granting of statutory powers to detain for treatment or otherwise return to their country of origin all infected alien immigrants. This, however, is a matter for the Board of Health rather than for the Committee. Dealing, however, with the treatment of non-infectious cases which now come within the sphere of duty of this Committee, the first question which arises is as to the steps to be taken for getting into touch with these cases. The British Medical Association has recently reaffirmed the principle of confidentiality in the relations between Medical men and their patients. This principle of confidentiality has already been encroached upon in the case of notifiable infectious disease, and while the country is not yet ripe for the notification of Venereal Disease it may be possible to take steps which would not infringe the principle of confidentiality and at the same time facilitate the treatment of non-infectious cases. Of the wide prevalence of non-infectious cases, including congenital cases, there can be no doubt, nor is there any doubt as to the desirability of having such cases treated. In the case of acquired infection where the patient has ceased to be infectious, treatment may ward off possible locomotor ataxy, arterial degeneration, or general paralysis of the insane at a later period in the patient's life. In the case of congenital disease, blood tests which have been taken show percentages varying from 6 to 19 of the cases yielding a positive Wassermann reaction indicating the presence of disease. (Royal Commission Report, p. 17.) Early treatment of such cases would tend to minimise or obviate the constitutional handicap from which all such infected children suffer.

"5.—TREATMENT CENTRES.—No definite progress has so far been made for the institution of a treatment centre at Falkirk, but it is hoped that during the current year some progress may be made. At Stirling the structural alterations are practically completed, and endeavours have been made to procure a Nurse with V.D. training, so that by including Gonorrhœal cases, the work may be undertaken on a more extensive scale than has hitherto been possible. There is a prospect of obtaining a suitably trained Nurse by the beginning of October, and it may be useful then for the Medical Officer to have a Conference with the Medical men in the County for the purpose of informing them of the facilities available for treatment, and enlisting their co-operation in

the work. In anticipation of such a meeting it would be well to have from the Board some indication of their views as to the course which might expediently be adopted for securing treatment of non-infectious cases.

“ 6.—PROPOSED JOINT ARRANGEMENT WITH CLACKMANNANSHIRE V.D. JOINT COMMITTEE.—As mentioned in the Minutes, there is a prospect of an arrangement with the Clackmannanshire V.D. Joint Committee for the treatment of their patients at the Stirlingshire Centres or Dispensaries. Under the Scheme as proposed, the net cost, past and future, of Treatment Centres and Dispensaries, and the net cost after 15th May, 1920, of the treatment of patients would be borne by the two Committees on the basis of the mean of population and valuation. In other matters each Committee would continue to act as at present. Clackmannanshire Committee desire a representation of four members on the Stirlingshire Committee, but they would of course only have a vote on matters upon which joint action is agreed upon.

“ (Signed) T. ADAM, Medical Officer.

“ (Signed) THOMAS LUPTON, Clerk.

“ Stirling, July, 1920.”

SMALLPOX HOSPITAL ACCOMMODATION.

During the year 1919, cases of Smallpox began to appear in various parts of Scotland. At length one was reported from Kirkintilloch, and indeed one of the contacts in this case resided in a part of the Western District of Stirlingshire. As the Central District was the only part of the County area which could be said to have proper hospital provision for Smallpox, I submitted the following report to all my Local Authorities on the accommodation for treatment of cases of Smallpox in the County of Stirling, including the Burghs of Bridge of Allan, Denny, and Kilsyth:—

“ When I was appointed County Medical Officer of Stirlingshire at the beginning of 1912, the only hospital provision for dealing with Smallpox was that at Camelon Hospital.

“ That consisted of an iron-and-wood pavilion, in which are two wards (male and female) with accommodation for the staff.

“ The pavilion is really within the grounds of the Hospital for acute infectious diseases, but was railed off and completely separated so that it was able to be worked as an institution apart. The length and breadth of each of the wards are respectively 24ft. and 22ft. 9in., giving a floor area of 546

square feet. The permissible number for each ward would therefore be not more than four cases, although I understand from the Matron that during a former epidemic a number considerably in excess of that estimate was dealt with, the hospital having to serve the Eastern District population of 40,000, besides other cases taken in from outside authorities who had no provision for such cases.

“Immediately before the war I raised the question of Smallpox accommodation with my Local Authorities, and action was at once taken by the Central District Committee in combination with the Burgh of Denny, with the result that a hospital was built on a site at Taylorton, immediately adjoining the site of a hospital of the same kind erected by the Hospital Combination of Burghs, viz. :—Stirling, Bridge of Allan, Dunblane, Doune, and Callander.

“My idea for advocating this particular site was to have the one hospital complementary to the other in the event of a large outbreak in any of the areas — the result of such an arrangement being to make the two separate small hospitals practically one.

“Each of these hospitals has full accommodation for eight patients (4 male and 4 female), but in emergency a larger number could, in my opinion, be safely dealt with.

“At a later date, and owing to pressure from the Local Government Board, Kilsyth Town Council requested that their Burgh be taken into the Combine with the Central District and the Burgh of Denny. Mutually satisfactory terms were arranged, and Kilsyth Town Council's request was granted.

“During the past summer, cases of Smallpox were reported from various parts of Scotland, and at the end of July I brought the question of the provision of hospital accommodation for such cases before the Western and Eastern Districts of the County.

“The Eastern District Committee were of opinion that the iron-and-wood pavilion might again be used, and in addition, both the Eastern District Committee and the Western District Committee asked me to bring the matter before the Central District Committee with a view to the Central District Committee granting permission to the two other County Authorities to send patients to the Hospital at Taylorton on certain conditions.

“As a result the Committee of Management of the Central District Smallpox Hospital passed the following resolution :

“(1) That in the event of an outbreak, Dr Adam was authorised to admit patients from County areas outwith

the area of the Central District Combination, but on the footing of giving a preference always to the requirements of the Combination area; the charges from patients from other areas to be fixed when occasion arises; (2) that Dr Adam shall procure meantime such furnishings for the Hospital as will not deteriorate by keeping, and as will enable the Hospital to be promptly used, if necessary; (3) that, subject to the approval of the Scottish Board of Health, the services of Dr Morrison, Bannockburn (who has recently been appointed Physician and Surgeon to the Central District Hospital for Infectious Diseases at Bannockburn) be retained for the Smallpox Hospital at a retaining fee of £5 5s per annum during each year from the date of his appointment in which the Hospital is not used by this Committee, and with such additional remuneration as may be appropriate, and as, in the event of difference of opinion, may be fixed by the Board during such years as the Hospital may require to be used for Smallpox cases by this Committee.

“ It will be seen from the foregoing, therefore, that while there is no separate provision for dealing with Smallpox in the Western District, an arrangement has been made by which cases arising among what is to be regarded as a sparse population can be dealt with at Taylorton. The likelihood is also that any Smallpox which may arise in the Western District will have its source from Glasgow, and if cases are being dealt with by Glasgow Hospital Authorities there is a probability that they would be willing to undertake such cases as might arise among the population of the Western District.

“ One does not lose sight of the useful part to be played by properly conducted reception houses in dealing with an outbreak of Smallpox, especially in populous areas. In County areas, however, it seems to me that the feasible plan would be to consider an infected house as a reception house for the time being, and to keep the inmates under proper medical observation for a period of at least 16 clear days. On that, and possibly on some other matters relating to the disease, the Board of Health may wish to give some guidance to Local Health Authorities.”

The foregoing report indicates what provision had been made in view of the possibility of Smallpox occurring in the County. It may be said, however, that early in 1920, on the initiative of the Corporation of Falkirk there was formed for the treatment of Smallpox a combination of all the Local Authorities in the County of Stirling with the exception of the Burghs of Stirling and Grangemouth. It was fortunate that such an arrangement had just been completed when actual

cases occurred within the combined area. The matter, however, falls to be dealt with in the Annual Report for 1920.

PREVENTION, DETECTION, AND TREATMENT OF TUBERCULOSIS.

Death Rates.—Below is given a Table showing the Death Rates from Phthisis and from other Tuberculous Diseases from 1891 down to 1919 :—

Table XI.—DEATH RATES FROM PHTHISIS AND OTHER TUBERCULOUS DISEASES IN THE COUNTY OF STIRLING, 1891-1919.

Year.	Estimated Population.	Phthisis Deaths		Other Tuberculous Deaths.	
		Number.	Rate per 1000.	Number.	Rate per 1000.
1891	50,657	84	1·654	48	·947
1892	64,293	65	1·007	49	·855
1893	64,609	80	1·232	41	·634
1894	67,030	88	1·311	55	·820
1895	68,559	99	1·445	44	·642
1896	69,232	89	1·281	45	·650
1897	71,688	93	1·292	40	·558
1898	71,816	98	1·362	50	·696
1899	73,389	103	1·400	50	·682
1900	75,097	97	1·290	30	·399
1901	69,138	80	1·152	33	·479
1902	71,135	90	1·260	25	·336
1903	70,950	84	1·183	28	·394
1904	71,885	93	1·292	53	·737
1905	72,411	67	·925	42	·580
1906	73,162	67	·916	47	·642
1907	74,500	89	1·194	44	·644
1908	76,890	73	·949	40	·520
1909	77,430	77	·994	36	·465
1910	78,105	86	1·101	33	·422
1911	80,105	67	·836	53	·661
1912	80,150	67	·835	45	·561
1913	80,180	72	·897	50	·623
1914	81,310	47	·578	50	·622
1915	81,660	60	·734	32	·392
1916	81,930	54	·659	39	·471
1917	82,190	51	·620	33	·401
1918	82,450	75	·909	28	·339
1919	82,660	33	·400	29	·351

In the year 1912, when reporting on the decline of the death rates from pulmonary tuberculosis in the County, I wrote:—"It will be noticed that in 1891 the phthisis death rate per 1000 was 1.654, that in no other year since has it touched so high a figure, and that there has been a general decline in the phthisis death rate until, in 1911 it was 0.836, approximately a half of what it was some twenty-one years before. The improvement has, therefore, been very great through the indirect measures applied to tuberculosis, but now machinery is being prepared under the Insurance and Public Health Acts for bringing more direct methods into play. It may be well to point out here that the general opinion is that to maintain a uniform compression of the death rate from tuberculosis will demand the application of forces not hitherto extensively used, namely, the notification of phthisis and sanatorium treatment."

Since 1911, a further steady decline of the death rates from pulmonary tuberculosis has taken place, so that for the five years, 1912-1916, the average rate was .740, as compared with 1.015 for the preceding five years (which latter figure was the lowest five years' average then reached), while the average rate for the last three years was only .643, which is the lowest figure on record for the County. It is to be specially noted that the average death rate of .643 from Phthisis for the three years 1917-1919 is barely a half of what pertained during the six years 1891-1896, when the average death rate was 1.321.

It would appear, therefore, that notification of the disease together with the preventive measures and treatment carried out under the Insurance and Public Health Acts have not been without effect not only in maintaining a "uniform compression of the death rate," but in still further reducing it.

With regard to the death rates from tuberculous diseases, other than tuberculosis of the lungs, the story is practically the same, the average rates being for the first six years on the Table, .758, and for the following four quinquennial periods, .563, .538, .542, and .538 respectively, while the average rate for the last three years of the Table is only .360. With regard to the last-mentioned death rate it is significant that here also, as in the case of the pulmonary death rate, the average rate for the three years 1917-1919 is less than half of the average rate which pertained during the six years 1891-1896, when it was .758.

It might have been thought that the Great War with all its hardships would have tended to increase the death rate from tuberculous disease, and there is no doubt that in certain directions it did so tend. For example, many young men,

splendid types, have come under my notice and care, who entirely as a result of their military service had developed consumption. In some cases the development of the disease was attributed to the hard life, exposure or wounds working havoc with their constitution, while many also dated their illness from the results of severe gassing.

At home, on the other hand, poverty became notably less. There was a great levelling upwards of the poorer classes, of which evidence was given by the greatly diminished numbers in receipt of parochial relief, and also in the diminishing percentage of badly nourished children found during school medical inspection. It is undoubtedly among the poorer classes that tuberculosis finds its best breeding ground, owing to certain causes operating more strongly in their case than in that of their more fortunate brethren. Poverty, with its concomitants, such as insufficient nourishment and bad housing, saps the constitution and renders the body more liable to the development of such diseases as tuberculosis.

Housing of a certainty was not improved during the war. New houses ceased to be built, repair of inhabited houses was to a large extent neglected for various reasons, and overcrowding became more frequent. Many houses that were not reasonably fit for human habitation were permitted to be occupied simply because there were no other houses for the people to go to. The influence of housing, therefore, was against any decrease in the incidence of tuberculous disease.

Nevertheless, the adverse influence of housing at home and the hardships endured at the front appeared to be more than counter-balanced by the fuller table which the poor were able to enjoy, and thus it is found that the death rate from tuberculosis has continued its downward course, in spite of unfavourable housing and other conditions at home, and in spite of the large number of soldiers discharged because of tuberculosis developed as a result of military service.

There is no doubt that Sanatoria and such institutions play a valuable part, but if tuberculosis is to be gradually abolished an important part of the campaign must be to raise the standard of living of the poorer classes, and improve their housing and general conditions of life.

Notification and Treatment.—It will be seen from the first part of the following Table (Table XII.) that the total notifications of cases of pulmonary tuberculosis within the three Districts of the County for the eight years (1912-1919) numbered 654, giving a yearly average of 82 over the period. Of these 654 it was ascertained that 375 had died, while 57 had gone to reside in the areas of other Local Authorities.

Table XII.—COUNTY OF STIRLING—PULMONARY TUBERCULOSIS, 1912-1919.

District of County.	Number of Notifications.									Died.	Left Dis- trict.	Present Number of Cases.	Age Groups.						Insured	Not Insured
	1912	1913	1914	1915	1916	1917	1918	1919	Total.				-5	5-15	15-25	25-45	45-60	60 +		
Central... ..	25	39	29	36	20	36	25	39	249	146	15	{ M. 53 F. 35	—	9	13	23	6	2	36	17
Eastern... ..	33	61	45	44	34	39	30	26	312	175	31	{ M. 66 F. 40	—	8	12	12	3	—	10	25
Western	11	16	13	9	13	11	11	9	93	54	11	{ M. 16 F. 12	—	9	17	33	5	2	53	13
													—	8	18	12	1	1	7	33
													—	—	5	8	3	—	14	2
													—	—	4	7	1	—	2	10
Total	69	116	87	89	67	86	66	74	654	375	57	{ M. 135 F. 87	—	18	35	64	14	4	103	32
													—	16	34	31	5	1	19	68

SANATORIUM AND OTHER TREATMENT.

Nature of Treatment.	Total Cases.	No. who Died or left the Districts.	Surviving Cases.	Condition of Patients.					
				Well or Working.	Improved.	Fairly Well.	Not Well.	Very Ill.	Under Institutional Treatment.
Institutional, with or without a further period of Domiciliary Treatment	257	152	105	53	11	19	12	1	9
Domiciliary (only)	55	41	14	6	—	5	2	1	—
Ordinary treatment at home	342	239	103	67	8	22	6	—	—
Total	654	432	222	126	19	46	20	2	9

so that 222 were definitely known to have survived. The present number of cases on our books, i.e., the known survivors, are divided in the table into age groups. Thus, under 5 years there are no cases. The age group 5 to 15 years, contains 18 males and 16 females; the age group 15 to 25 years, contains 35 males and 34 females; the age group 25 to 45 years, contains 64 males and 31 females; the age group 45 to 60 years, contains 14 males and 5 females; while there are only four male cases and one female case over 60 years of age.

There are two facts specially worthy of notice in the figures relating to the survivors :—(1) The males predominate in each of the age groups, and (2) by far the greatest number affected belong to the most productive period of life, that is from 15 years to 45 years of age, the period therefore when as economic assets the victims but for their affliction would have been most valuable to the State.

Of the survivors, 103 males and 19 females are insured persons under the Act, while 32 males and 68 females are non-insured.

The lower part of the Table shows that up till the end of 1919 institutional (mostly sanatorium) treatment had been granted to 257 patients, or considerably less than one-half of the 654 cases notified. Many of these on their return home were further granted domiciliary treatment. The number of patients granted domiciliary treatment only was 55. The residue, viz., 342 patients, were for various reasons left at home.

Following the line dealing with cases of institutional treatment, it is seen that of the 257 cases treated, 152 by the end of 1919 had died or left the districts, and that 105 cases were known to have survived. Of the survivors, 53 were well and mostly working, 11 were improved in health, 19 were fairly well, 12 were not well, and one was very ill, while 9 were under institutional treatment.

The remaining lines of the Table are to be read in the same way. The last, for example, dealing with the total number of notified cases, shows that of 654 cases notified, 432, i.e., two-thirds, had died or left the districts, leaving 222 survivors, of whom 126 were well and mostly working, 19 were improved in health, 46 were fairly well, 20 were not well, and 2 were very ill. The foregoing figures relate solely to cases occurring within the three Districts of the County, and in a large proportion both of sanatorium and domiciliary cases treatment had been granted several times. These figures, too, were considerably augmented by cases from the

Burghs of Bridge of Allan, Denny, Kilsyth, and Grangemouth. The figures relating to the first two burghs are given along with the Burgh reports, while those for Kilsyth and Grangemouth will doubtless be given by their respective Medical Officers of Health.

Sanatorium Accommodation.—By request of the Local Government Board, I presented in July, 1912, a report to my Local Authorities on the Prevention, Detection, and Treatment of Tuberculosis. That report suggested the advisability of combination between neighbouring authorities, and outlined a complete scheme for the combination, part of which was the erection of a sanatorium, with accommodation sufficient for the combined area, and comprising not only sanatorium beds proper, but also accommodation for hospital cases, public health cases, and such other cases as might be sent to tuberculosis dispensaries for the purpose of observation.

The chief reason for suggesting the concentration of all cases in one institution of fair size because it was rightly considered both economically and administratively unsound to provide multiple small institutions.

A comprehensive scheme for dealing with tuberculosis was at length successfully launched under the Sections of the Insurance Act, which meant that the scheme applied not only to the County area proper, but included also such burghs as had not more than 20,000 inhabitants, viz., Denny, Bridge of Allan, Grangemouth, and Kilsyth, the authority being designated the Stirling County Tuberculosis Authority.

A combination was also in time formed between the Stirling County Tuberculosis Authority, Clackmannan County Tuberculosis Authority, and Stirling Burgh for the purpose of providing a Joint Sanatorium.

Various sites were inspected and reported upon by the three Medical Officers of the Combining Authorities. Certain tests were applied in each case as to Site, Drainage, Exposure, Soil, Water Supply, Accessibility; and the site best meeting the requirements of these tests was that on the southern slopes of the Barr Wood, a little to the west of the main road between Stirling and Denny. Plans were accordingly prepared and approved for a sanatorium of 100 beds, estimated to cost from £20,000 to £25,000, but just when everything appeared favourable, the Great War burst upon us in August, 1914, and eventually in 1916 the whole project was postponed until the conclusion of the war.

How the war went on from year to year is within the knowledge of all, and also how building prices soared. The

result was that at the conclusion of the war estimates for a building on the lines of the pre-war plans staggered the Joint Committee, so that month after month passed, and the end of 1919 still found them in a vain search for an institution suitable and of reasonable cost.

During all that time cases of pulmonary tuberculosis in the County had to be sent for treatment to sanatoria at a distance, such as Manor Valley, near Peebles, Hillside Homes, near Perth, Bridge of Weir, Longriggend, etc.

The average period of institutional treatment was much shorter than would have been the case had there been a sanatorium of our own. Most patients sent benefited in health, some very greatly, and all received valuable lessons on how to live to their own best advantage and also how best to eliminate the danger of infecting their fellows.

Occasionally a case is met which may appear to be in a fairly early stage, but in which the progress of the disease cannot be said to be appreciably retarded by the best sanatorium treatment. On the other hand, certain cases, especially children and some adolescents, show remarkably good results from sanatorium treatment. Worthy of mention is a family of which three young members, a lad aged $16\frac{1}{2}$ years, a girl aged 10 years, and another girl at the age of 16 years were all in turn notified to me. After a period of sanatorium treatment each returned home, and for the past six years the lad and the elder girl have enjoyed normal health, while the younger girl, now aged 17 years, is so much improved as to warrant the hope that she too will regain good health. All three are able to lead useful lives.

Between the two extremes are ranged those who derive benefit more or less. Some are enabled to continue work for six months, a year, two years, three years, and longer before breaking down. Under this category is also classed the chronic Fibroid case which often improves wonderfully under sanatorium conditions, and returns home fit for work for a spell as a bread winner. Such cases practically always recur, and many of them ask for another period of sanatorium treatment, after which they are again fit to resume their duties, and so on.

The results of treatment went to show that the sanatorium is a valuable and even an essential accessory in a scheme for treatment and prevention. There were many drawbacks in dealing with sanatoria so far away, e.g., many cases could not be sent at all, and in connection with those sent there were many administrative worries, so that patients, their friends, medical practitioners, and public health staff all

yearned for the day when accommodation would be provided within reasonable distance at least of the large centres of population to be served.

It has been said above that many cases could not be sent away to distant sanatoria. These, however, were all notified cases, for the treatment of whom the Local Authorities were responsible. They mostly called more or less urgently for treatment.

In this extremity I at length suggested that the most urgent of these cases might be dealt with in any accommodation that might be available at the hospitals for the treatment of acute infectious diseases. I quite recognised the difficulties and even the dangers in adopting such a course, but there was no doubt it was in some cases preferable to leaving the patients at home under conditions unsuitable for themselves and dangerous to their friends.

The Local Government Board also understood the position, and quite rightly gave only a provisional approval to the proposal. The Fever Hospital has proved a haven for some poor, even pitious cases, and there have been no accidents so far, but obviously such accommodation could not be recommended as a permanent part of a scheme.

With regard to cases of non-pulmonary tuberculosis a few have been sent for institutional treatment, but for the great majority of these cases little or nothing has been done, because of the lack of suitable accommodation.

Domiciliary Treatment.—At the beginning of our scheme for dealing with tuberculosis very little could be done in the way of domiciliary treatment, principally because of the stringent conditions imposed by the Local Government Board regarding the patients' housing conditions. It was in the poorest homes that there was most need of the assistance of domiciliary treatment, but it was precisely in these homes that the housing conditions rarely met the requirements of the Board.

Within comparatively recent times, however, the Board saw fit to relax considerably their requirements regarding the housing conditions, and that accounts for the fact that those who have benefited by domiciliary treatment form a relatively small number.

HOUSING.

Within comparatively recent years, practically the whole of our working class houses was provided by private enterprise. Fully a dozen years ago, however, a slackening was perceptible in the rate of production of dwellings, especially for the working classes. The tapering off rapidly increased from year to year, until even before the war a comparatively small number of new houses was being produced. During the war production reached vanishing point except for new houses which might be termed emergency houses, as they were built to house munition workers and workers of a similar description.

Various reasons have been assigned for the falling off. Dwelling-houses, of course, were mostly built as a business speculation. They were considered a safe and good investment, but gradually there began to be some doubt as to this, and, in fact, housing investments have come to be viewed from a different angle. Recent legislation has been blamed for being a deterrent factor which many allege makes undue demands on the owners; again, the interests of owners and those of occupiers seem to have become in many cases almost diametrically opposed, and the two classes have become almost antagonistic. There is no doubt that from one cause and another house property is not now regarded as an attractive or profitable investment.

It is to be remembered, however, that housing shortage is not confined to this country, but has been acutely felt in Continental countries, such as France and Belgium, where the war tended to accentuate it. Even Germany, which did not participate in the housing havoc associated with the war, has been faced with a housing problem owing to shortage. In America, production has not kept pace with the demands for additional housing, and there also the shortage has become acute, in fact, it may be broadly stated that there is, generally speaking, a world-shortage of houses.

Houses in our climate are, of course, a necessity. They must be produced by private enterprise or otherwise. If private enterprise has failed the necessity for production still remains, and under pressure the Government had of necessity to take up the matter.

The problem was too huge for the Government to tackle directly, and therefore it was resolved that for each area the Local Authority should be responsible. Each Local Authority was therefore required to submit a statement as to its housing needs, and was also required to submit a scheme that would make good the shortage.

Stated briefly, the Local Authorities were required in the first instance to finance their housing schemes, but the Government undertook to give Grants covering all expenditure over and above what would be produced by a rate of four-fifths of a penny in the pound. That is to say, each Local Authority was only asked to contribute towards the cost of the housing schemes an amount representing what would be produced by an addition of four-fifths of a penny in the case of the Public Health Rate.

It was felt that to ascertain the actual housing needs a survey of all existing houses would be necessary, and I therefore initiated such a survey in each of the Districts and also in the Burgh of Denny. The general outline of the survey was to divide the houses into three categories :—

- (1) Houses that are fit for human habitation;
- (2) Houses that can be made fit for human habitation;
and
- (3) Houses that can not be made fit for human habitation.

These categories referred only to the structural condition of the houses, and had no reference to the number of apartments. That is to say, if a house even of one apartment were good structurally it was put under the first category. It was not necessarily condemned because it was of one apartment.

The survey in the Central District has been completed, and in the Eastern and Western Districts it is nearing completion.

The following Table gives the figures for the County so far as they have been ascertained :—

Table XIII.—RESULTS OF INQUIRY INTO HOUSING CONDITIONS IN THE COUNTY SO FAR AS SURVEYED.

Condition of Houses.	NUMBER OF APARTMENTS.				
	One	Two	Three	Four and over	Total
(1) Houses fit for Human Habitation	341	3162	1296	1767	6566
(2) Houses that can be made fit for Human Habitation	441	1610	439	352	2842
(3) Houses that can not be made fit for Human Habitation	262	367	49	32	710
Total	1044	5139	1784	2151	10118
Number of New Houses required to replace (3)					710
Also, say one-half of (1) and (2) one-apartment houses when these are converted into two-apartment houses					390
Also, say one-half of (1) and (2) one-apartment houses when these these are converted into three-apartment houses... ..					1590
Total Number of New Houses required to replace existing houses and to raise the general housing standard					2690

The Table, giving the results of the Housing Survey for each District, will be found in the Special Report for each District.

A note of the housing schemes launched by each District Committee will also be given under the District Reports.

RIVERS POLLUTION PREVENTION.

In 1915 a Deputation from the County Rivers Pollution Committee visited Westfield Paper Works and the Avon Paper Works, Linlithgowshire, and I thought it well to insert here a copy of my notes on that occasion.

“ The County Rivers’ Pollution Committee deputed to a Sub-Committee to make inquiry and report on the pollution of the Carron, and the members of the Sub-Committee considered that it would be advantageous to see the conditions in the case of the Avon, a river where similar industries prevail.

“ At Westfield Paper Works there are two paper-making machines, and the raw material consists largely of esparto grass. That necessitates the employment of the causticising process, and Mr Stewart, the Managing Director, informed us that fully eighty per cent. of the caustic soda used is recovered for future use.

“ As the mill was not working at the time of our visit we did not see the effluent and the ponds in operation. We were informed, however, that the effluent from the two paper machines and from the breakers, and also the last washings of the esparto grass before it is withdrawn from the boilers are piped to the sedimentation ponds. The ponds, six in number, are in series, and are divided by brick partitions. From the west the six ponds show a gradual fall, so that the effluent and washings, on being discharged into the westmost pond gradually overflow the brick partition wall and fill the next pond, the same occurring through the series. The result is that much of the solid is sedimented in the ponds.

“ The effluent from the sixth, i.e., the terminal pond, is then taken by means of a wooden conduit alongside six ash filter ponds, into any one of which the effluent can be led by

means of control apertures. Each filter pond is of sufficient capacity to serve for the effluent and final washings of one day.

"It was stated that the ash filter ponds do not discharge the yellowish colour of the effluent and washings. The colour, which is an extract from the esparto grass, is in solution, and simply passes through the ash filters.

"There are other six ponds for receiving the carbonate of lime and other residue from the mixing tanks, after the caustic soda in solution has been withdrawn. The residue, consisting mostly of carbonate of lime, is very moist when taken from the mixing tanks. It is therefore left in the ponds until it is considerably dried. The solid refuse is then removed to a refuse heap. Although at present this residue is merely so much waste material, in certain districts it is applied to the land, and I have heard there is hope that a process may be found by which a greater proportion of the fluid and of the sodium salts may be extracted, thus bringing it to a condition suitable for certain building operations.

"The water used in the actual paper-making is obtained from the River Avon, but is first of all purified by means of a mechanical filter (Bell's).

"The water of the River Avon, where it reaches the Westfield Paper Works, stood in much need of filtration as seen by us on the day of our visit. The water of the stream seemed to be contaminated with coal washings, and it also had a look of sewage contamination.

"We then proceeded to the Avon Paper Works, where we were met by the owner. At this mill there is one paper machine, and here also much esparto grass is used with some wood pulp. The causticising process is in constant operation, and a soda recovery plant is installed. A mechanical filter (Bell's) is used to purify the water for the actual paper-making.

"There are no filters for the effluent, which is therefore discharged untreated into the River Avon. It was stated that ash filters are not in the least effective in decolorising the effluent from the esparto grass.

"The effluent was noticed to be pretty yellow, and the stones in the bed of the lade taking the water from the mill were very glutty. It was further observed that the stones in the bed of the stream above the point of discharge of the Avon Paper Mill effluent were all covered with the same light yellowish glut, due no doubt to the paper works higher up.

"At the Avon Paper Mills the carbonate of lime and other residue is discharged into the River, and the owner was of

opinion that this acted as a sedimentation medium, thereby tending to clarify the water of the stream.

" From what we saw of the River Avon, the most that could be said, I think, is that its condition with regard to pollution did not indicate any improvement on that of the River Carron. It seems, however, that trout are to be got in the River Avon, while for a good many years there has been none in the Carron. Of course it must be remembered that at Carrongrove Paper Works alone there are no fewer than four paper machines in operation. Besides, at the time of our visit we formed the opinion that the Avon carries a larger volume of water than does the Carron. It goes without saying that the pollution in both streams must be to some extent detrimental to fish life, the greater the degree of pollution the worse for the fish. Now the degree of pollution is largely a matter of dilution, and it can be readily understood how high the degree will be in the Carron during a dry summer, when for weeks and even months there may be a very small run of water in the bed of the stream.

" From the upper reaches of the Carron and its tributaries three communities obtain their gravitation water supplies. Many millions of gallons of water which formerly would have gone to swell the waters of the river Carron are therefore now impounded in large reservoirs, and piped therefrom to supply the household and manufacturing requirements of Denny Burgh, Falkirk Burgh, and East Stirlingshire area. Much of this water, abstracted from high up the Carron Valley, is returned to the stream lower down, in a more or less polluted condition.

" In considering the possible effects on fish life of this impounding of waters from a stream which supports important paper industries there are at least two aspects requiring attention. On the one hand, while much of the total water is taken away, provision has to be made for a daily compensation supply. That, no doubt, tends during dry seasons to give a better average flow than would naturally be available, which, one would think, would be of advantage to fish life.

" On the other hand, apart from the compensation water already mentioned, no water falling in the three catchment areas during the dry season, which usually lasts for months, will go to augment the water in the river. The result is that the scouring effect of freshets during the dry season is to a large extent obliterated, so that the pollution of the bed of the stream is really cumulative, and may reach so high a degree as to offer a reasonable explanation for the disappearance of trout from the Carron below the paper mills."

RIVER BONNY.

In January, 1917, a Sub-Committee visited Bankier Distillery and Banknock Livingstone Pit.

At the time of the visit to Bankier Distillery, the centre filter pond was in use. In the pond a brownish yellow glut was precipitated from the liquid refuse. The supernatant fluid was then drawn off and passed very gradually through a small pipe into the Bonny Water, so as, if possible, not to overtax the water of the stream.

It was reported that, in spite of the precautions adopted, on three occasions there had been seen a good deal of froth on the stream. There had, however, been no reports about trout being killed for a good many months.

At Banknock Livingstone Pit two of the settling ponds were practically full, and the third had been partially emptied. There was really no settling of the coal washings. Fortunately, less of the coal output was then being washed. The Committee felt that the condition of the ponds was very unsatisfactory. The foreman said that the condition was due to the difficulty of getting labour, and also that the frost had retarded progress. The Committee resolved to ask the Clerk to write the Company informing them of their finding, and the County Medical Officer was requested to pay another visit in about a fortnight.

In reply to a letter from the County Clerk the following letter was received from the Banknock Coal Company:—

POLLUTION OF THE BONNY.

“ Referring to yours, re above, we have inquired into this matter, and regret exceedingly that on the occasion of your Sub-Committee’s visit to the Colliery the settling ponds were in an unsatisfactory condition.

“ Our Manager reports that owing to the scarcity of labour and to the refusal of the men to work overtime, it was not possible to attend to the cleaning of the ponds in the customary manner. In addition, the severe weather prevailing during the last month or so has been another important factor. We have taken up the matter strongly with our Manager, and have his assurance that everything possible will be done to avoid any complaint in the future.

“ You can understand that the labour problem is the principal cause of the ponds being in an unsatisfactory condition, and with the further combing out process at the Collieries, the problem will become more acute. We have, however,

given such instructions to our Manager that we are confident there will be no further cause for complaint."

In July, I took samples from the Bonny, and the following is the Analyst's report:—

"Labels:—County Council of Stirling. Rivers Pollution Prevention. A.—Sample of water taken by Dr Adam on 7/7/17, from the Bonny Water immediately above the point of junction with the Doups Burn. Reason for analysis—to ascertain the amount of pollution and its effect on fish life."

"County Council of Stirling. Rivers Pollution Prevention. B.—Sample of water taken by Dr Adam on 7/7/17, from the Bonny Water, below the confluence of the Doups Burn, but above the Bankier Distillery Filter Ponds. Reason for analysis, same as for A."

"County Council of Stirlingshire. Rivers Pollution Prevention. C.—Sample of Water taken by Dr Adam on 7/7/17 from the Bonny Water immediately below the Bankier Distillery Filter Ponds. Reason for analysis, same as for Sample A."

In Solution.	Grains per Gallon.		
	A.	B.	C.
Mineral matter	21.60	23.04	19.65
Organic matter .....	.72	.80	1.50
Total dissolved matter	22.32	23.84	21.15
Nitrates as Nitrate of Soda .....	.10	.10	.05
Free Ammonia .....	.009	.011	.010
Albuminoid Ammonia .....	.008	.009	.028
Total Ammonia .....	.017	.020	.038
Colour (Loch Katrine Water equals 10)	12	14	10
In Suspension.			
Mineral matter	—	—	.52
Organic matter	—	—	.38
Total Suspended matter	trace	trace	.90
Dissolved Oxygen, in Cubic Centimetres per Litre ...			
	6.7	6.8	6.8

"A. The sample, as received contained a mere trace of suspended matter, and had a brown tint equal to slightly more than the Glasgow water supply, this being due to the presence of a little mossy matter.

“ The analysis shows that this water is polluted to a small extent with animal matter, being equal to a mixture of one part of average sewage with 260 parts of pure water. There was nothing detected that would be injurious to fish life, and the proportion of Dissolved Oxygen is normal.

“ B. This sample was, in appearance and composition, very similar to Sample A., so that the above remarks apply to this sample also.

“ C. The sample, as received, contained a little suspended matter, and when the latter was removed, the colour of the water was rather lighter than A. and B.

“ The Dissolved Oxygen in this water is about 90 per cent. below the normal, and it is, therefore, probable that it would be injurious to fish life, due to deficiency of Oxygen (see Report of Royal Commission on Sewage Disposal, Appendix VI., page 208).

“ R. R. TATLOCK & THOMSON.”

At the time the samples were taken the effluent from Banknock Pit was practically clear. The analysis of Sample C. shows that there was a large amount of organic matter coming through from the ponds at the Distillery, to such an extent as to render the water deficient in oxygen so as to be probably injurious to fish life. At the time of my visit two of the distillery ponds were in use, there being nothing in the pond further west.

In March, 1919, a complaint was received from the Scottish Central Electric Power Company regarding the pollution of the Bonny. I again visited Banknock Pit, and found the effluent quite satisfactory. In conversation with the Manager, however, regarding the alleged pollution, he stated that serious labour troubles had been anticipated at the collieries, and that on that account the settling ponds had not been emptied in the usual regular cycle. He also said that in the event of certain eventualities they had intended using the silt as fuel for the boilers, and had therefore refrained from dumping it on the top of the bings, as is the usual practice.

On the whole, I must say that the Colliery Company's record for a long time has been quite satisfactory.

RIVER CARRON.

In September, 1917, I reported as follows to the Rivers Pollution Committee:—

“ On the 10th August, it was noticed that the water in the River Carron at Denny was red coloured. On visiting

Carrongrove and Stoneywood Paper Mills the Sanitary Inspector discovered that the red discolouration was due to the effluent discharged from Stoneywood Paper Mill. He took a sample of the effluent.

"The Manager stated that the discolouration was due to an inferior Turkey Red dye, which was not readily absorbed by the paper in the process of manufacture. He promised, however, to stop using it.

"The Inspector noticed that the effluent from Carrongrove Paper Works, as discharged into the River Carron, appeared to be normal. I am enclosing a copy of the analysts' report on the sample taken by Mr Goldie, from which it will be seen that the dye consisted mainly of red oxide of iron, which consists of finely divided particles insoluble in water. They are therefore held in suspension, not in solution, and that is really the reason why they are not readily absorbed."

(Copy of Report referred to.)

"Label: — 'Sample of effluent taken from Stoneywood Paper Mills, Denny, as discharged into River Carron, 10th August, 1917.—R. G.'"

In Solution.	Grains per Gallon.
Mineral matter	7.65
Organic matter	1.40
Total dissolved matter	9.05
Nitrates	none
Free Ammonia .....	.031
Albuminoid Ammonia .....	.010
Total Ammonia .....	.041
Iron	none
Arsenic, Lead, etc.	none
Alkalinity, as Carbonate of Lime	2.61

In Suspension.	
Oxide of Iron	5.50
Other Mineral matter .....	.94
Organic matter	1.86
Total Suspended matter	8.30

" The sample, as received, was red in colour, this being due to the suspended matter, which consisted mainly of Red Oxide of Iron. The latter is evidently the dye referred to by the Manager of the Paper Works, and being only a fine powder insoluble in water, would not be readily absorbed by paper. After removal of the suspended matter, the water was almost colourless.

" The sample contains Ammonia to a small extent, and would indicate that it was a mixture of about one part of average sewage to 240 parts of pure water. It will be observed that there is no poisonous or deleterious matter present in solution, and the Oxide of Iron being in suspension is not likely to have any particular effect on fish life, for example.

" R. R. TATLOCK & THOMSON."

In October, 1917, in connection with a complaint that great quantities of ashes were being put into the Carron from the paper works, and that chemical pollution and pollution from closets " built over the Carron " at Headswood Mill was taking place, I called on the complainer and asked to see the ashes. He informed me that they could not be seen, and that the complaint referred to some former occasion, but he could not remember the exact time. Regarding the paper mills, I reported:—

" On the 18th September, I made a visit of inquiry to the Paper Mills on the River Carron. As I have on several occasions reported on these industries, from the point of view of the resultant pollution of the Carron, the last report making fairly exhaustive comparison between the River Carron and the River Avon, I purpose confining my remarks to the three items of the complainer's letter, referring to (1) ashes, (2) chemicals, and (3) sanitary conveniences.

" (1) Ashes.—The complainer in his letter talks loosely of ' hundreds of tons ' of ashes being put into the Carron. At the Denny Paper Works, Headswood, the coal required is carted by a contractor, who also sees to the removal of the ashes to a bing. It appears that lately owing to shortage of labour the contractor has put some of the ashes into the Carron, that entailing less trouble than removal to the bing. At two of the other paper mills, viz., Stoneywood and the Vale, something of the same kind had happened, and for a like reason. Since the war these industries have been facing enormous difficulties of one kind and another.

" (2) Chemicals.—The Committee will remember that in former reports I pointed out that Carrongrove Paper Works are practically the only paper mills on the Carron where

chemicals are employed, these being necessary in the treatment of the large quantities of Esparto grass used.

"A great deal of caustic soda is used, but very expensive and up-to-date plant was instituted years ago to recover the soda, and I have reported that 92 per cent. is actually recovered. At my visit the Managing Director assured me that at present their percentage recovery approaches 95. It actually pays to recover the soda, as it can be re-used. In a former report I regarded pollution from this source as at a minimum.

"When it is remembered that Carrongrove Works are now manufacturing forty tons of paper per week as compared with 200 in pre-war times, it will be seen how little ground there is at present for complaint regarding chemicals.

"(3) Sanitary Conveniences.—These discharge direct into the Carron. With regard to the provision and supervision of such sanitary conveniences, I would point out that this question has never, so far as I can ascertain, engaged the attention of the County Public Health Department for the reason that Section IX. of the Factory and Workshop Act, 1901, definitely places this duty upon the Factory Inspector.

"It will therefore be seen that the insinuation contained in the last part of the complainant's letter is entirely unwarranted and without point."

Since 1917, I have had few, if any, complaints regarding pollution of the Carron.

POW BURN.

In June, 1917, complaints were made regarding pollution of the Pow Burn. Two cows had died with symptoms of poisoning, and the water of the Burn was suspected of conveying the poison. I visited Plean Colliery, and had samples of water taken as it left the pit, and also as it was discharged into the Burn. The next day I had samples taken from the Pow Burn and also from the suspected lade, and the following is a copy of the analysts' reports. It will be seen that the analysts could not account for the symptoms of cattle poisoning.

Labels:—"County Council of Stirling. Alleged Cattle Poisoning. No. 1, Effluent from Plean Colliery, taken at point of entry to ditch leading to Pow Burn, by Dr. Adam, 30/5/17."

"County Council of Stirling. Alleged Cattle Poisoning. No. 2, Effluent from Plean Colliery as pumped from pit, taken by Dr. Adam, 30/5/17."

"No. 3—From Pow Burn."

"No. 4—From Lade."

In Solution.	Grains per Gallon.			
	No. 1.	No. 2.	No. 3.	No. 4.
Mineral matter	23.50	26.28	18.15	18.20
Organic matter .....	.30	.32	1.10	1.10
Total Dissolved matter ...	23.80	26.60	19.25	19.30
Nitrates as Nitrate of Soda	.15	trace	.11	.20
Free Ammonia .....	.003	.001	.021	.014
Albuminoid Ammonia ...	.003	.003	.009	.010
Total Ammonia .....	.006	.004	.030	.024
Phenols, Lead, Iron, etc.	none	none	none	none
In Suspension.				
Mineral matter	1.25	2.48	.30	.26
Organic matter	1.34	3.97	.45	.43
Total Suspended matter...	2.59	6.45	.75	.69

“ **No. 1.**—The sample, as received, contained some suspended matter, which was of a dark grey colour, and consisted largely of coal dust.

The analysis shows that this water has been contaminated with animal matter, and it may be regarded as a mixture of one part of average sewage with about 200 parts of pure water, the Ammonia originally present having become almost all nitrified. The only other ingredients found were the usual Lime and Magnesia compounds, the sample being a fairly hard water.

“ **No. 2.**—The sample, as received, contained a fair amount of suspended matter, almost black in colour, and consisting mainly of coal dust.

The analysis shows that this water is free from animal matter or sewage, but in other respects is similar to No. 1.

After removal of the suspended matter, both No. 1 and No. 2 samples were practically colourless.

“ **No. 3.**—The sample, as received, contained a little brownish coloured suspended matter, which consisted chiefly of vegetable debris. After removal of the suspended matter, the sample had a distinct brown tint, equal to twice that of Loch Katrine water, this being due to the presence of mossy matter.

“ The analysis shows that this water has been contaminated with animal matter, and it may be regarded as a mixture of one part of average sewage with 150 parts of pure water, only about one-half of the Ammonia originally present having become nitrified.

“ This is a fairly hard water.

“ No. 4.—The appearance and general composition of this sample are practically the same as those of No. 3, except that it contains rather more animal matter than No. 3, the proportion being one part of average sewage to 110 parts of pure water.

“ Leaving the sewage and coal dust out of consideration, there is not a trace of anything of a poisonous or deleterious nature in any of the above four samples.

“ R. R. TATLOCK & THOMSON.”

Again, in August of the same year, complaint was made regarding the Pow. On receiving the complaint, I requested Mr Bremner, County Sanitary Inspector in the Eastern District, to visit the Burn and to inspect its condition. Mr Bremner reported that at his visit the level of the burn was normal, and that he did not see any cause to take a sample. He said, however, that the burn had lately been in spate, and that as a result the grass on both sides of the burn had a coating of a dark slimy substance, no doubt due to sedimented coal dust being washed up from the bed of the burn by the spate.

RIVER KELVIN AND GLAZERT WATER.

In connection with a complaint from the Secretary of the Kirkintilloch Branch of the National Farmers' Union regarding pollution of the Glazert Water, I visited and inspected the stream along with the Sanitary Inspector in September, 1917, and reported to the Committee as follows :—

“ The Glazert is a tributary of the Kelvin, which it enters at the northern boundary of the Burgh of Kirkintilloch. A number of streamlets unite to form respectively the Kirk Burn and the Pow Burn, the junction of these two forming the Glazert. The Kirk Burn receives streamlets from the Campsie Fells, and passes through the Clachan of Campsie. The Pow Burn receives the Finglen Burn from the north. From the point of junction of the Pow Burn and the Kirk

Burn, just above Campsie Glen Railway Station, the total length of the Glazert to its confluence with the Kelvin is about four miles.

“Industrial Pollution.”—Taking the principal sources of industrial pollution from the head of the stream downward, we have—

“(1) Glenmill Laundry, on the Finglen Burn, with 85 hands, as compared with about 100 in 1911. Soapy water is discharged into the burn. Small quantities of bleach, the principal ingredient of which is chlorine, reach the stream. Every effort is made to recover the starch for further use by catching it in boxes at the mangles, so that the amount which passes away in the effluent is almost negligible.

“At the time of my visit there was a considerable flow of water, and the effect of the laundry effluent was seen where it entered the stream. A few yards below it was barely perceptible.

“(2) Lennox Mill, which is a calico printing work at Lennoxton, is the property of the Calico Printers' Association. It gets its water supply partly from the Glazert and partly from the Campsie Hills. Even with every care in the processes a greater or smaller proportion of the aniline dyes which are of course in solution, escapes to the stream. The effluent is also said to contain a certain amount of the usual chemicals found in discharges from such works. It is also said that one source of the water supply contains originally magnesium, sulphur, and iron—it is in fact a mineral water. If acid is added the stream becomes black, owing to the formation of what is really a kind of weak ink.

“At great trouble and expense, starches, clays, and other solids might be taken from the effluent, but no process of filtration would retain the dyes which are in solution.

“The conditions are much the same as in 1911, with this important exception, that the works are nothing like so busy since the war, so that now there are only 260 employees as compared with almost 500 formerly.

“(3) Lilyburn Print Works. — These also belong to the Calico Printers' Association, and are situated just to the west of Milton of Campsie. The water comes from the Campsie Hills, none being taken from the Glazert. The effluent, however, goes to that stream. The discharges and conditions generally are much the same as in 1911, and are analogous to those pertaining to Lennox Mill. At present the employees number 270.

“(4) Kincaid Works.—These are situated below Milton of Campsie, and were formerly used as Print Works. They have been idle, however, for the past sixteen years. At my visit I found them in process of conversion into works for the manufacture of aniline dyes. Long before the war the Germans, recognising the importance of aniline dyes, had captured practically the entire industry. The war has demonstrated how necessary it is that such products should, as far as possible, be manufactured at home.

“It is probable that a certain amount of colouring matter in solution from these works will unavoidably reach the Glazert.

“In conclusion, it has to be said, of course, that the Glazert is to some extent polluted by the works draining to it. The degree of pollution is, however, much less than in 1911. The Campsie Alum Works have unfortunately been closed for years, and long since ceased to add their quota to the stream. The war has largely added to the perplexities of the other industries associated with the Glazert, e.g., Lennox Mill has now only a little over 50 per cent. of its pre-war number of employees.

“Not only does the time therefore seem inopportune, but there would not appear to be urgent cause for the County Rivers Pollution Committee to take action with regard to the Glazert.”

Again, in February of 1919, the Western District Committee received a letter from the then Local Government Board, regarding which I reported as follows:—

13th February, 1919.

“Referring to the Local Government Board’s letter of 11th January requesting a report from me as to whether a nuisance exists in the sense of the Public Health (Scotland) Act, 1897, with regard to the Kelvin and Glazert in the area of the Western District, I wish to say that I have had several letters from the Secretary of the National Farmers’ Union, Kirkintilloch Branch, all making statements about the poisonous condition of these streams, but without producing any proof whatever as to his assertions. On each occasion, however, I made an inspection to find out for myself the truth or otherwise of the statements, and on the 27th September, 1917, and 23rd January, 1918, I sent a report to the Clerk to the County Rivers Pollution Committee. It may be instructive for the Board to have a copy of these former reports, and I am herewith enclosing a copy.

“ With regard to the latest complaint, namely, that sent to the Local Government Board, I paid a special visit, along with Mr Gough, the Sanitary Inspector, on the 22nd January, to investigate the conditions complained of. Six samples of water in all were taken, one sample being taken at a reasonable distance above, and a corresponding sample at a reasonable distance below the source of alleged pollution, giving three pairs of samples. I enclose a copy of the particulars of the samples taken, and also a copy of the analysts' reports on the samples.

“ At my former visit there was, as indicated in my report of 23rd January, 1918, a considerable amount of trade pollution from Dumbreck Colliery. The Company were working at extreme pressure producing material for high explosives such as Benzol and Toluol. My impression at the time was that the Company under existing circumstances were doing all that could be reasonably asked of them to prevent pollution, although the effluent to the stream left a good deal to be desired. I impressed my view upon the Manager, who promised to do what he could to remedy the acknowledged defect in the effluent as soon as possible. At my last visit on the 22nd ulto., I found that the effluent complained of had been for a considerable time pumped to the top of the refuse bing in connection with the colliery, through which it percolated gradually to the stream, the result being very satisfactory.

“ I have no hesitation in saying that there is no nuisance existing in the sense of the Public Health (Scotland) Act, 1897, in the conditions found at any of the places visited, and I would further submit that the analysts' report shows the statement as to the filthy and poisonous condition of the Rivers Kelvin and Glazert to be greatly exaggerated.”

(A copy of this report was also sent to the Clerk of the Rivers Pollution Committee.)

Dumbreck Colliery.—In June, 1918, a report by the Dumbartonshire County Medical Officer to his Rivers Pollution Committee was brought to the notice of the Stirlingshire Committee. In this report it was stated that a stream, known as the Dock Burn, which is a tributary of the Kelvin, on the Stirlingshire side, received effluent from Dumbreck Colliery and sewage from Kilsyth Burgh. I was requested to investigate, and I reported that—

“ There is no doubt that there is a good deal of pollution of the Dock Burn by the effluent from Dumbreck Colliery,

but it would not be correct to say that there is no colliery pollution of the Kelvin from the County of Dumbarton.

“ The gas from the coking ovens is washed by water so as to abstract the ammonia, the gas itself, thus purified, being utilised mostly for heating purposes. The washings from the gas are then treated with quick-lime to drive off the ammonia, which is then absorbed by sulphuric acid, thus forming ammonium sulphate.

“ The spent liquor contains some phenols and other organic compounds, and it is these that form the objectionable matters in the colliery effluent. The lime and other solids are as far as possible taken out by means of settling tanks.

“ For something like five years before the war, experiments on biochemical lines were carried out by Dr Fowler of Manchester, which were successful up to a point. In the Manchester district, however, Dr Fowler had really very good results with a similar effluent, but in that case he was able to have the effluent diluted before filtration with 75 per cent. of sewage. That was impossible with the Dumbreck effluent, and it was found that where the proportion of pit effluent was greater than that the results were very much less satisfactory, as the organisms in the filters were soon killed off.

“ For some time back, the Manager has thought of another plan, and has been laying pipes to enable him to pump the whole of the spent liquor on to the top of the rubbish heap as a huge filter. He is afraid that the pumping distance may be too great, but he is going to put it to the test. As the Manager said to me, there are 70,000 gallons of spent liquor per day, and the only really effective way to prevent pollution would be to evaporate the whole of the spent liquor.

“ I learned while at the colliery that the ammonium sulphate is at present being wholly taken up by the Government, and is used in the manufacture of munitions. Also, that the colliery are supplying large quantities of tri-nitro-toluol and benzol to the Government for the same purpose. In fact, it would appear that the colliery is in all essentials a controlled establishment.

“ The Manager further assured me that the degree of pollution is no greater than it was before the war.

“ In view of the above, one can hardly advise the Committee to take stringent measures against such a company, whose whole energies are absorbed doing what must be considered urgent national work of the very highest importance.”

RIVER FORTH.

A complaint was received by the Town Council of Stirling in September, 1918, regarding the deposit in the River Forth of refuse from Manor Powis Colliery. I called at the Colliery on the 19th September, and had an interview with the Manager. I duly reported the result of my inquiry and interview to my Committee, and the following is a copy of my notes :—

2nd October, 1918.

“ The Manager said that as a result of the pit workings some parts of the surface had subsided considerably. He showed me a field at the side of the River Forth immediately west of the Powis Burn where it joins the Forth, and said its surface had been lowered by about 3 feet with the result that damage had been caused through flooding. He alleged that the deposit of the pit refuse complained of had as its object to raise and strengthen the river bank with a view to preventing such damage.

“ The river at that part has what might be called the bank proper,—by that is meant the bank which at high tide keeps the water in the river channel and prevents it from overflowing on to the adjacent field. The bank proper at the part is neither wide nor strong, and it has been reinforced by wooden piles, 8 feet long, in front of it, closely driven side by side.

“ In front of these piles and the bank proper there is a shelving projection consisting of a bank of mud which has been deposited by the river, and which slopes downwards towards the water for a considerable breadth. This mud is overgrown with sedges and tall rank grass, and is uncovered by water except at high tide.

“ A very large quantity of solid material from the pit has been deposited on this sedge grown part to an average width of 6 or 7 yards along an extent of approximately 110 yards immediately in front of the bank proper and the piles. Mr Stevenson informed me that it is intended to prolong the deposit along the side for approximately other 70 yards. I calculate that eventually there will have been deposited some thousands of tons of pit refuse.

“ The Manager's idea is that on the part of the refuse material washed by the tidal waters a silt will be deposited, effectually preventing erosion of the made-up bank. He further proposes to cover with earth the part of the made-up bank above high water, and to sow it with grass seed.

“ It being high water at the time of my visit, I made a further visit on the 25th to see the place at low tide.

"I cannot say whether or not the Manager's opinion is sound regarding the non-erosion of the made-up bank by the tidal waters, but there does seem to me a very serious question as to whether or not a large part of the material deposited may be eventually displaced by the water. If that were to happen there might result considerable obstruction in the fairway of the river."

RIVER AVON.

Complaint was received in June, 1919, and again in December, 1919, from the Slamannan Angling Association, as to pollution of the Avon by the Longrigg Colliery Company. The following are copies of my reports on each occasion:—

18th June, 1919.

"There is much coal washing done at Longrigg Colliery which is really situated in Lanarkshire. The Manager showed me the process adopted for taking the silt out of the water used for washing purposes. The water is pumped up to a very large settling pond on the top of the colliery refuse-heap. That was being done at the time of my visit. After the silt has been allowed to settle the water is run off by means of a sluice into a smaller pond at a lower level, where further settling takes place. With such means, and in careful hands, there should be very little pollution, if any. I was informed that during dry weather the clear water from the lower settling pond is used over and over again for washing purposes, so that practically no water is discharged to the Culloch stream, a tributary of the Avon. The silt from the settling ponds is banked up on the sides of the ponds. The Manager was perfectly frank, and said that during the very heavy rains it is possible that some of the silt may be washed away and so reach the Culloch Burn. He said emphatically that there was no wilful pollution, and that in fact they tried everything they could to prevent it.

"It will be understood that any pollution occurring in the way indicated would cause less harm to the fish than during dry weather, because the stream being in flood any possible pollution will be much diluted."

10th January, 1920.

"With reference to the letter of complaint of 19th December regarding the pollution of the Culloch Burn, a tributary of the Avon, by coal washing from Longrigg Colliery, I visited the colliery on Thursday, the 8th inst., and found the conditions of washing and sedimentation practically the same

as when reported on by me on the 18th June, 1919. There was a good deal more water in the stream, however, owing to recent very heavy rains, and it was to be noticed that the surface water draining from the colliery over the moss to the burn was dark, and evidently contained coal silt, as is to be expected at such a time. The burn, as a consequence, showed evidence of coal silt. In my former report I indicated that the Longrig Colliery is really situated in Lanarkshire, and therefore we have no power over the colliery owners. I would therefore suggest that in future any complaints be referred to the Lanarkshire County Committee."

FOOD AND DRUGS ACTS.

One hundred and eighty-five samples were taken by the County Sanitary Inspectors for analysis under the Food and Drugs Acts. Of these, 69 were taken in the Central District, 74 in the Eastern District, and 42 in the Western District. Twenty-two of the samples were reported by the Analysts to be adulterated. In only one case was legal proceedings taken, but these were unsuccessful.

Table XIII. gives a synopsis of the samples taken.

Table XIII.—SAMPLES TAKEN UNDER THE FOOD AND DRUGS ACTS DURING THE YEAR 1919.

Nature of Samples	Central District		Eastern District		Western District	Total
	North	South	North	South		
Vinegar	0	0	0	2	0	2
Butter	2	6	1	0	0	9
Butter (Salt)	0	0	0	1	0	1
Cheese	2	0	1	1	0	4
Cinnamon	1	0	0	2	0	3
Coffee	0	0	0	0	1	1
Cream of Tartar	3	4	0	2	0	9
Dripping	2	4	0	2	0	8
Flour	0	0	0	1	0	1
Corn Flour	0	0	0	1	0	1
Epsom Salts	0	0	0	1	0	1
Margarine	3	5	1	3	1	13
Milk (Sweet)	9	9	35	11	38	102
Oatmeal	0	0	0	1	0	1
Semolina	0	0	0	1	0	1
Rice (Ground)	0	0	0	2	0	2
Sugar	4	0	0	0	1	5
Sweets	1	0	0	0	0	1
Black Pepper	0	0	0	1	0	1
Tea	0	0	0	2	1	3
Mustard	1	3	0	0	0	4
Whisky	7	0	0	0	0	7
Pepper (White)	1	2	0	2	0	5
Total Samples	36	33	38	36	42	185

INSPECTIONS—1919.

The following is a statement of the proceedings under the Public Health and other Acts, as tabulated by the County and District Inspectors:—

	Central		Eastern		Western	Total
	North	South	North	South		
Subordinate Sanitary Inspectors employed	0	0	0	0	0	0

I.—Nuisances.

Complaints received	5	8	60	9	6	88
Intimations served under Section 19	71	64	33	40	35	243
Notices served under Section 20	0	0	3	18	4	25
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

II.—Workshops.

Inspections	38	38	80	55	22	233
Notices served under Section 2 (3) of Factory and Workshop Act, 1901	0	0	0	0	1	1
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

III.—Tents and Vans.

Inspections	0	2	15	2	8	29
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IV.—Underground Dwellings.

Number reported to Local Authority	0	0	0	0	0	0
Notices to owners (Section 74)	0	0	0	0	0	0
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

V.—Common Lodging-Houses.

On Register at 1st January, 1919	0	0	0	1	0	1
Registered during year	0	0	0	0	0	0
Renewals of Registration	0	0	0	1	0	1
Removed from Register	0	0	0	0	0	0
On Register at 31st December, 1919	0	0	0	1	0	1
Common Lodging-Houses belonging to the Local Authority	0	0	0	0	0	0
Inspections between 8 a.m. and 10 p.m.	0	0	0	7	0	7
Inspections between 10 p.m. and 8 a.m.	0	0	0	0	0	0
Intimations of Irregularities sent to Keepers	0	0	0	0	0	0
Cases of Infectious Disease reported to Medical Officer (Section 97)	0	0	0	0	0	0
Unregistered Premises dealt with	0	0	0	0	0	0
Cases in which legal proceedings were taken (Breaches of Bye-Laws, etc.)	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

VI.—Houses Let in Lodgings.

On Register at 1st January 1919	0	0	0	0	0	0
Registered during year	0	0	0	0	0	0
Removed from Register	0	0	0	0	0	0
On Register at 31st December, 1919	0	0	0	0	0	0
Inspections	0	0	0	0	0	0
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

	Central		Eastern		Western	Total
	North	South	North	South		
<i>VII.—Infectious Diseases</i>						
Visits of inquiry, etc.	162	235	186	216	119	918
Patients removed to Hospital	108	18	109	45	17	297
Persons removed to House of Reception	0	0	0	0	0	0
Notices served under Section 50 (2).....						
Notices served under Section 53 (2).....	128	84	0	144	20	376
Intimations to School Boards Teachers, etc. ...	384	33	228	216	8	869
Houses or Premises disinfected	140	27	127	92	19	405
Sets of Clothing, Bedding, etc., disinfected or destroyed	140	27	127	87	0	381
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

<i>VIII.—Burials.</i>						
Burials undertaken in terms of Section 69	2	0	0	0	0	2

<i>IX.—Dairies, Cowsheds, and Milkshops.</i>						
On Register at 1st January, 1919	77	78	73	105	122	455
Registered during year	0	3	0	3	3	9
Removed from Register	4	1	6	2	2	15
On Register at 13th December, 1919	73	80	73	106	123	455
Inspections	168	251	96	89	77	681
Contraventions of Orders or Regulations dealt with	0	2	0	8	8	18
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

<i>X.—Slaughter-Houses and Offensive Trades.</i>						
Applications under Section 32 for sanction to establish	0	0	1	0	0	1
Applications granted	0	0	0	0	0	0
Applications under Section 33 for Licence or Renewal of Licence	8	5	0	9	4	26
Applications granted	8	5	0	9	4	26
Public Slaughter-Houses	0	0	0	0	0	0
Private Slaughter-Houses	0	0	4	8	5	17
Unlicensed Slaughter-Houses dealt with	0	0	0	0	1	1
Inspections of Slaughter-Houses	96	77	34	80	33	320
Inspections of other Offensive Businesses	0	0	16	8	0	24
Number of such other Offensive Businesses at 31st December, 1919	0	0	1	1	0	2
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
(Breaches of Bye-Laws, etc.)	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

<i>XI.—Unsound Food</i>						
Inspections under Section 43	115	86	118	67	39	425
Seizures of Unsound Food	1	1	0	0	0	2
Animals or Carcasses or Articles of Food destroyed with owners' consent by or at the instance of the Sanitary Inspector	10	1	0	0	0	11
Cases in which owners of Unsound Food were prosecuted	0	0	0	0	0	0
Convictions in connection with above cases	0	0	0	0	0	0

<i>XII.—Food and Drugs Acts.</i>						
Samples procured for Analysis	36	33	38	36	42	185
Certified to be genuine	33	23	34	33	37	160
Certified to be adulterated	3	7	4	3	5	22
Cases in which legal proceedings were taken.....	0	0	0	1	0	1
Cases in which legal proceedings were successful	0	0	0	0	0	0

Central		Eastern		Western	Total
North	South	North	South		

XIII. *Rag Flock Act, 1911.*

Samples procured for Analysis	0	0	0	0	0	0
Certified to conform to Board's Standard	0	0	0	0	0	0
Certified not to conform to Board's Standard ...	0	0	0	0	0	0
Cases in which legal proceedings were taken.....	0	0	0	0	0	0
Cases in which legal proceedings were successful	0	0	0	0	0	0

XIV.—*Bye-Laws*

inspections in carrying out Bye-Laws relating to:

(a) Pigstyes	10	20	16	189	7	242
(b) Public Conveyances	37	0	0	0	0	37
(c) Buildings	12	2	12	12	28	66
(d) Cleansing in Special Scavenging Districts...	47	89	80	102	54	363
(e) Other Bye-laws relating to Sanitary matters	0	0	0	0	14	14

DISTRICT REPORTS.

CENTRAL DISTRICT.

HOUSING.

Plans for New Dwellings.—During the years 1915, 1916, 1917, and 1918, only a dozen plans were submitted to the District Committee for approval. The number of new dwellings dealt with in these plans was 25, 16 being of three apartments, four of four apartments, and five of more than four apartments.

For the year 1919, excluding plans for new houses under the Housing Scheme, the number of plans passed was 13, seven of these being for new houses, five for alterations and additions, and one for a proposed lay-out of a building site. The number of new houses embraced in the plans was 13, one being of one apartment, nine of four apartments, and three of more than four apartments.

Housing Survey.—Table XV. gives the results of the completed housing survey of the Central District, from which it will be seen that the total number of houses in the Central District is 5550. These are classified in the same way as has been explained in the general part of the Report referring to the County as a whole.

Table XV.—STATEMENT OF RESULTS OF INQUIRY INTO HOUSING CONDITIONS IN THE CENTRAL DISTRICT.

Condition of Houses.	NUMBER OF APARTMENTS.				
	One	Two	Three	Four and over	Total
(1) Houses fit for Human Habitation	207	2116	775	1126	4224
(2) Houses that can be made fit for Human Habitation	113	594	196	187	1090
(3) Houses that can not be made fit for Human Habitation	60	148	15	13	236
Total	380	2858	986	1326	5550
Number of New Houses required to replace (3)					236
Also, say one-half of (1) and (2) one-apartment houses when these are converted into two-apartment houses					160
And, say one-third of (1) and (2) two-apartment houses when these are converted into three-apartment houses... ..					904
Total Number of New Houses required to replace existing houses and to raise the general housing standard					1300

Housing Schemes.—These Schemes now form a large part of the work of the District Committees. In the Central District the proposal is to erect 500 houses.

A whole-time Architect with requisite staff was appointed, and Schemes have been prepared for the erection of houses at various centres, as follows :—

	Number of Houses	Number of Apartments			Remarks
		3	4	5	
Causewayhead	30	10	18	2	Proposed Rents—£22, £26, £30.
Cambusbarron	20	10	10	0	
East Plein	32	18	12	2	
Bannockburn	50	26	24	0	
Bonnybridge	50	20	27	3	No definite progress owing to difficulty of obtaining site.
Banton	10	6	4	0	Other 10 houses later on.
Cowie...	30	15	15	0	Progress delayed owing to difficulty about water supply.
Banknock	Details not yet decided.				

WATER SUPPLY.

Throughout the years 1915-1918 the water supplies of the district were fairly well maintained. During severe frost or continued drought there have been complaints of temporary shortage, especially at Bannockburn. Muiralehouse has now been included in the Bannockburn Special District. Various alterations and improvements have been made to existing private supplies.

With regard to the villages of Cowie and Fallin, in the year 1915 a formal requisition by ratepayers for the formation of a Special District was favourably considered by the Local Authority; but the Local Government Board were of opinion that such a scheme should be delayed in view of the then urgent need for economy in capital outlay and labour.

The very dry summer and autumn of 1919 put a very severe strain on the water supplies, so that in some districts there was a considerable shortage, and the water was shut off for a portion of the day during a long period. It was confidently felt that the supplies would be augmented during October, but that expectation was not realised. The first portion of November was practically a continuation of the same kind of weather as in October, and to make matters worse a very severe frost set in on the 13th November.

Fortunately, however, it only continued for four days, and a welcome thaw set in on the morning of the 17th. Thereafter there were abundant rains, and the water situation was saved. To add to the difficulties people persisted in allowing

their taps to run during the frost even although they knew that there was such extreme scarcity. The result was that in one district, namely, Banknock, I had an urgent message from a gentleman that the people in Banknock had been without any gravitation water from Friday, the 14th, till Monday, the 17th. I at once communicated with Mr Massie, Superintendent of Falkirk and Larbert Water Trust, who said that the reason of the shortage at Banknock was that the people of Longcroft and Haggs would be allowing the taps to run to prevent freezing. Especially during such a scarcity it shows of course great want of thought and consideration for others for people to allow their taps to run continuously.

Bannockburn. — Complaints of shortage were again received. The pipe from the Stirling main to the village was scraped, and an improved supply resulted.

Cambusbarron.—There has also been considerable shortage here, principally owing to incrustation of the pipes. Scraping of the pipes was resorted to, and in addition water was obtained from the Stirling Water Works, with the result that there is now a much better supply.

Kippen.—The increasing of the water supply* to Kippen is under consideration.

Cowie and Fallin.—In October I was asked by the Scottish Board of Health for a report on the water supply to Fallin. I reported very fully on the question, and in conclusion I stated "it will be seen that the water supply to Fallin has not been satisfactory for years, and in my opinion the people have a legitimate cause of complaint."

The whole question of water supply for Cowie and Fallin has been receiving the earnest attention of the Local Authority, but by the end of the year the question was still under consideration.

Gallamuir.—In the summer of 1918, I examined the system of water supply at Gallamuir Farm, Plean. The water is taken from a burn flowing through the farm, and is forced by means of a ram to a cistern from which it gravitates to the farm house and buildings. It has now been in existence for over 20 years, and I am informed is working as satisfactorily now as when first installed. There is a very plentiful supply always available.

CENTRAL DISTRICT—WATER ANALYSES.

Table XVI.

No.	Where Sample taken and Date.	Result.	Action Taken.
1915.			
1 January 12th.	Grangemouth Reservoir, North Third.	Satisfactory.	
2 January 12th.	Barr Wood Reservoir, Denny.	Satisfactory.	
3 January 19th.	Fankhead Cottage, Dennyloanhead.	Slightly polluted.	Falkirk and Larbert Water supply introduced.
4 February 12th.	Dip Well at Roadside, Swanhill, West Plean.	Satisfactory.	
5 March 5th.	Dip Well at side of field, Swanhill, West Plean.	Polluted.	House closed.
6 May 13th.	Pump well, Helenslea Cottage, South Barrwood.	Badly polluted.	Pump-well protected.
7 September 28th.	Kilsyth Parish.	Satisfactory.	
8 October 19th.	Dip well in field, Sauchieburn.	Satisfactory.	
9 October 19th.	Grangemouth Water Main, Muirmailing Farm.	Satisfactory.	
	Tap in Conny Buildings (Stirling Burgh supply).	Satisfactory.	
1916.			
1 June 23rd.	River Forth (between Kames and Whitehouse Burns).	Satisfactory.	
2 June 23rd.	Do. (50 yards below Drip Bridge).	Satisfactory.	Improvements effected.
3 July 17th.	Well in Courtyard, Manor Farm, Logie.	Polluted.	
4 July 28th.	Beaton's Mill, Whins of Millon	Satisfactory.	
5 August 5th.	Angus Step Farm, Kippen.	Polluted.	Repairs carried out.
6 December 8th.	Manor Farm, Logie (same as No. 3).	Polluted, but improvement on No. 3.	
1917.			
1 July 18th.	Galeside, Kippen (Pump well).	Polluted.	Improvements effected.
2 July 18th.	Angus Step Farm, Kippen.	Polluted.	Further repairs carried out.

CENTRAL DISTRICT—WATER ANALYSES (Continued).

No.	Where Sample taken and Date.	Result.	Action Taken.
1918.			
1 July 26th.	Angus Step Farm, Kippen.	Polluted.	Unspent manurial pollution, which will diminish gradually.
2 August 3rd.	Gargunnoch Station House (Pump).	Satisfactory.	) Steps being taken to introduce gravitation water supply.
3 August 9th.	Mid-Thomastoun, Denny.	Polluted.	
4 August 9th.	Easter Thomastoun, Denny.	Badly polluted.	
1919.			
1 March 15th.	West Carse Farm, Gargunnoch (from hills).	Slightly polluted.	(Pollution probably temporary). Samples taken later—satisfactory.
2 April 24th.	Banloun Mill, Kilsyth.	Satisfactory.	
3 April 24th.	West Carse Farm (taken from burn 20 yds. below point of alleged pollution)	Satisfactory.	
4 April 24th.	Do. (do.. 50 yds. above alleged point of pollution).	Satisfactory.	
5 June 26th.	Do. (Pump at farm).	Satisfactory.	
6 June 26th.	Do. (from burn, 30 yds. above point of alleged pollution).	Satisfactory.	
7 June 26th.	Do. (from burn, 20 yds. below point of alleged pollution).	Satisfactory.	
8 July 30th.	Field drain, Oxhill, Buchlyvie (from proposed supply to potato diggers).	Polluted.	Improvements to be undertaken.
9 August 13th.	Quarry Hole, Plean Mill Cottages.	Satisfactory.	Gravitation supply will be introduced when possible. Meantime water will be boiled before use.
10 August 14th.	Sauchenford Burn, Rosehill	Polluted.	
11 August 13th.	Quarry Water Supply, Kippen.	Satisfactory.	
12 September 11th.	Dip Well, Kirk o' Muir, by Denny.	Satisfactory.	See No. 10
13 September 11th.	Pump, Drumbowrie Farm, Denny.	Satisfactory.	
14 September 17th.	Sauchenford Burn, Rosehill.	Polluted.	
15 September 17th.	Powdrake Farm, Airth Road Station.	Satisfactory.	Informed Estate Agent.
16 October 23rd.	Dip Well, Lintmill, Kippen Parish.	Satisfactory.	
17 November 13th.	Well at Glentirran, Kippen	Polluted.	

DRAINAGE.

During the years 1915-18 there has been nothing of special importance to report.

With regard to Bannockburn, I stated in my 1914 Report that the sewage works were producing "a less and less satisfactory effluent" as the sewage became stronger, and that "whatever may have been thought of the filtering trays at the beginning they are not now a success." The works are still carrying on, and since the end of the year (1919) a report on the matter has been asked for from a civil engineer.

Cambusbarron.—The much-needed Drainage Scheme for the village of Cambusbarron has not yet materialised, and the Scheme has been indefinitely postponed until it is ascertained whether an adequate water supply for a drainage scheme can be obtained.

Bonnybridge.—With regard to the Joint Sewage Works here, the Eastern District Committee communicated with the Central District Committee with reference to a scheme for sludge disposal. The proposed scheme, however, on consideration, was not thought very satisfactory, and it was suggested that the Eastern District Committee should instruct their Inspector to have estimates taken as to the cost of the Scheme and for the cleaning of the tank.

East Plean.—The distributors at the works here are similar to those at Bannockburn (Stoddart's trays), and the question of renewing them is under consideration.

FACTORY AND WORKSHOP ACT.

During the past five years systematic inspection was made of all workshops and workplaces in the District, and practically without exception they were found to be kept in a very satisfactory way.

In 1919, 75 inspections were made, but no conditions were found requiring statutory notice.

At one mill, on my representing that the facilities for supplying drinking water to the workers could be bettered, the owners made considerable improvement.

The number of workshops on the Register is 37.

INFECTIOUS DISEASE.

Table XVII. gives a brief statement of the Notifications of Infectious Disease during the years 1915 to 1918 inclusive. The years 1917 and 1918 were remarkable for their freedom from outbreaks, the total number of cases in 1917 being only 153 (including 60 cases of tuberculosis), and in 1918, 115 (including 54 tuberculous cases). This was principally due to the reduction in Scarlet Fever cases, the number of which fell to 16 in 1918, as compared with 187 in 1916. The figure for Diphtheria remained fairly constant, the average for the four years being 32.7. The mean percentage of cases of infectious disease removed to Hospital was 65.

For the year 1919, as will be seen from Table XVIII., the number of notifications rose considerably, so that (including Tuberculosis, but exclusive of diseases such as Malaria, Dysentery, etc., which were made compulsorily notifiable as from 1st August, 1919), the figure was 312. The number of Diphtheria cases was about three times the average number for the previous four years, and the number of Scarlet Fever notifications also rose considerably.

Table xvii.—CENTRAL DISTRICT.—CASES OF INFECTIOUS DISEASE COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH DURING THE YEARS 1915-1918.

Year	Smallpox	Diphtheria and Membranous Group	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Puerperal Fever	Cerebro-Spinal Fever	Acute Poliomyelitis	Plithisis Pulmonalis	Non-Pulmonary Tuberculosis	Total
1915—No. of Cases No. Removed to Hospital, &c.	34 26	17 1	122 108	... ...	11 11	... ...	1 ...	4 3	... ...	36 16	27 ...	252 165
1916—No. of Cases No. Removed to Hospital, &c.	24 18	14 ...	187 171	... ...	7 6	... ...	1 ...	2 ...	... ...	20 8	16 3	271 206
1917—No. of Cases No. Removed to Hospital, &c.	34 28	16 ...	37 35	... ...	2 2	... ...	1 ...	3 2	... ...	36 19	24 1	153 87
1918—No. of Cases No. Removed to Hospital, &c.	39 33	5 ...	16 14	... ...	... ...	... ...	... ...	1 1	... ...	25 12	20 ...	115 60
Average No. of Cases, Mean Percentage of Cases Removed to Hospital, &c.	...	32.7	13	90.5	...	5	...	7	2.5	...	29.5	24.5	197.7
	...	80	2	90	...	95	...	...	60	...	47	4	65

Table XVIII. — CENTRAL DISTRICT.

RETURN OF CASES OF INFECTIOUS DISEASE NOTIFIED, &c.,
DURING THE YEAR ENDING 31ST DECEMBER, 1919.

Population, Census 1911, 26,203. Population estimated to middle of 1919,
30,127.

DISEASE	NUMBER OF CASES COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH									
	At Age—Years								Cases removed to Hospital	Cases not removed to Hospital
	At all Ages	Under 1 Year	1 and under 5	5 and under 15	15 and under 25	25 and under 45	45 and under 65	65 and upwards		
<i>A.—Notified under the Infectious Disease Notification Act, 1889.</i>										
Typhoid or Enteric Fever	6	...	...	...	2	2	2	...	4	2
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...	...	...
Scarlet Fever or Scarlatina	136	2	32	87	10	4	1	...	124	12
Diphtheria and Membranous Croup	94	1	23	61	6	2	1	...	84	10
Erysipelas	18	...	1	1	...	7	3	6	...	18
Puerperal Fever ... ..	...	...	...	...	...	...	...	...	...	...
Cholera ... ..	...	...	...	...	...	...	...	...	...	...
Relapsing Fever ... ..	...	...	...	...	...	...	...	...	...	...
Continued Fever ... ..	...	...	...	...	...	...	...	...	...	...
Cerebro-Spinal Fever ...	1	...	...	...	1	...	...	...	1	...
Total	255	3	56	149	19	15	7	6	213	42

*B.—Notified in terms of Regulations made under Section 78 of the
Public Health (Scotland) Act, 1897.*

Ophthalmia Neonatorum	5	5	...	...	...	...	...	...	...	5
Malaria	10	...	...	...	3	6	1	...	...	10
Dysentery	2	...	...	...	1	1	...	...	...	2
Trench Fever	1	...	...	...	...	1	...	...	...	1
Acute Primary Pneumonia	6	...	1	1	1	3	...	...	...	6
Acute Influenzal Pneumonia	1	...	...	...	...	1	...	...	...	1
Pulmonary Tuberculosis ..	39	1	1	9	11	17	...	...	18	21
Non-Pulmonary Tuber- culosis... ..	13	...	3	2	5	3	...	...	1	12
Total of A and B ...	332	9	61	161	40	47	8	6	232	100

Table XIX.—CENTRAL DISTRICT—CASES OF INFECTIOUS DISEASE COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH DURING THE YEAR 1919.

[illegible]

Diphtheria.—The great majority of the 94 cases occurred in St Ninians Parish and Denny Parish, where there were 57 and 23 cases respectively, and the only parish which remained free from the disease was Dunipace. All but 10 of the 94 cases were removed to Hospital. Only three cases out of the 94 proved fatal.

Scarlet Fever. — In all, 136 cases of Scarlet Fever were notified in 1919, 74 being in St Ninians Parish, 32 in Denny Parish, 19 in Kilsyth Parish, and 5, 4, and 2 respectively in the Parishes of Kippen, Logie, and Stirling. One patient died. The number of cases removed to Hospital was 124, or about 91 per cent.

Enteric Fever.—Six notifications were received, 4 from St Ninians Parish, and 2 from Denny Parish. Four of the cases were removed to Hospital. There were no deaths.

With regard to one of these cases, that of a woman at Bannockburn, there were some rather interesting features.

The patient first felt ill on the 23rd of June — sore head, sickness, and loss of appetite. She was shivery, and had slight rigors. These symptoms continued for a week, and the doctor was called on the 2nd July, when he diagnosed Enteric Fever.

The patient had not been in contact with any person who had been ill. Everyone in the house was in normal health, and I could find no exact information as to the source of infection. On Saturday, the 7th of June, however, the patient had been at a picnic to the Glen, Bridge of Allan, and being thirsty she drank several times from the River Allan. She was the only one of the party who had drunk freely of the river water, the others having only partaken of the water, after boiling, by way of tea. The period elapsing between the date of the picnic and the date of sickening coincided with the incubation period of Enteric Fever.

Later, in conversation with a Stirling doctor, I learned of two cases of Enteric with a history similar to the above. It appeared that the only possible source of infection was that the two patients (both children) had attended a picnic up the Allan. The party consisted of 17 children up to 15 years old, with two adults in charge. The two patients had not seen each other for a week before the picnic, nor did they meet for a week thereafter. Apparently the proceedings began with tea made from water not taken from the Allan, but when the adults were clearing up, the children went to the river, and all drank from it, with the exception of a child of three years. None of the others showed ill effects except one boy, who was out of sorts for a few days.

I thought it well to inform the County Medical Officer of Perthshire of the facts, and in reply he said he was not at all surprised to hear that people who drank raw Allan River water from the part of the river mentioned contracted Enteric Fever. The smell of the water should, he thought, be a sufficient warning!

Cerebro-Spinal Fever.—Only one case was notified during the year—that of a lad of 19 years from Dunipace Parish. The patient was removed to Bannockburn Hospital, and made a good recovery.

Ophthalmia Neonatorum. — Five cases were notified—4 from St Ninians Parish, and one from Denny. In four of the cases the child was under the care of a medical man. The other was notified by a midwife, and the parents were advised to call in a medical man, which they did.

Malaria, Dysentery, Trench Fever, Acute Primary Pneumonia, and Acute Influenzal Pneumonia were, by order of the Board of Health, made compulsorily notifiable during the year, and the numbers notified will be seen in the Table. It was not found necessary to take any of the cases to hospital.

Tuberculosis—Pulmonary.—The number of Phthisis cases notified to me was 39, 27 of which were from the Parish of St Ninians, 5 from Denny Parish, 2 each from Logie and Kilsyth Parishes, and one from each of the Parishes of Dunipace, Gargunnoch, and Kippen. Eighteen of these newly notified cases were taken to sanatoria for treatment.

Non-Pulmonary.—Thirteen cases came to my knowledge, 5 being in the Parish of St Ninians, 4 in Kilsyth Parish, 3 in Denny Parish, and one in Kippen.

The whole question of Tuberculosis, however, is more fully dealt with in the County part of the Report.

BANNOCKBURN FEVER HOSPITAL.

During the four years 1915 to 1918 (inclusive), 564 cases were treated in the Hospital, 392 of which were of Scarlet Fever, 114 of Diphtheria, 23 of Enteric Fever, 5 of Measles, 7 of Erysipelas, 13 of Cerebro-Spinal Fever, 7 of Influenza, 2 of Pulmonary Tuberculosis, and 1 of Pneumonia. Of these 564 cases, 488 were from the Central District, 52 from the Burgh of Denny, 6 from the Burgh of Stirling, 4 from the Burgh of Bridge of Allan, and 14 were cases admitted from Military Camps in the neighbourhood. The following Table gives the details :—

Table XX.—BANNOCKBURN FEVER HOSPITAL.

District.	Scarlet Fever				Diphtheria				Enteric Fever				Cerebro-Spinal Fever				Others				Total				Grand Total
	1915	1916	1917	1918	1915	1916	1917	1918	1915	1916	1917	1918	1915	1916	1917	1918	1915	1916	1917	1918	1915	1916	1917	1918	
Central ...	116	174	39	14	25	18	24	36	9	5	4	0	4	0	2	2	3	2	3	8	157	199	72	60	488
Burgh of Denny	30	12	2	2	...	...	1	1	...	2	...	...	1	...	...	...	31	14	4	...	31	14	4	3	52
Burgh of Stirling	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	...	2	...	4	...	2	...	4	...	6
Burgh of Bridge of Allan	...	...	...	...	1	3	...	...	...	...	...	...	...	...	...	...	1	3	...	...	1	3	...	...	4
Military ...	1	1	1	...	...	1	4	...	1	...	...	...	...	...	...	...	2	2	10	...	2	2	10	...	14
	147	187	42	16	26	22	29	37	10	7	6	...	5	...	6	2	5	2	7	8	193	218	90	63	564

The deaths from Scarlet Fever numbered 7, equal to a fatality rate of 1.7 per cent. From Diphtheria the deaths were 8, or 7 per cent. of the cases treated. Five of the 23 Enteric cases died, giving a fatality rate of 21.7, and of the 13 cases of Cerebro-Spinal Fever treated, 8 died.

On 1st January, 1919, there were 10 cases in the Hospital remaining over from the previous year. During 1919, 226 cases were admitted, of which 193 were from the Central District, 14 from the Burgh of Denny, and 19 from the Burgh of Stirling. Table XXI. gives the details of the cases admitted.

The following statement shows the number of cases remaining on 1st January, 1919, the number of cases admitted throughout the year and the number remaining at the close of the year, with the total number of days residence for each disease.

Of the 197 cases treated to a termination, 172 were Central District cases, 18 belonged to the Burgh of Stirling, and 7 to the Burgh of Denny.

The total days residence of the 197 cases was 7616 days, the average residence being 38.6 days. Up to the end of the year the total residence of the 39 cases still in Hospital was 843 days, and up to the end of 1918 the total residence of the 10 cases then in the wards was 247 days. Adding the former and deducting the latter gives a total residence within the year of 8212 days. This gives the average daily number of patients in Hospital at 22.5.

The number of Scarlet Fever cases treated to a termination was 98, the total residence being 4387 days, giving an average residence of 45.7 days. All recovered.

The 89 Diphtheria cases had a total residence of 2854 days, the average residence being 32.0 days. Four deaths occurred, the patients having been in the wards 44 days, 10, 6, and 4 days respectively.

The total residence of the 4 Enteric cases was 172 days, the average residence being 43 days. There were no deaths.

Three Measles cases were treated, and one of these proved fatal. The Erysipelas case admitted also died.

Table XXII.—BANNOCKBURN FEVER HOSPITAL, 1919.

	Scarlet Fever		Diphtheria		Enteric Fever		Cerebro-Spinal Fever		Measles		Erysipelas		Influenza		Total	
	Cases	Days' resi- dence	Cases	Days' resi- dence	Cases	Days' resi- dence	Cases	Days' resi- dence	Cases	Days' resi- dence	Cases	Days' resi- dence	Cases	Days' resi- dence	Cases	Days' resi- dence
Cases remaining 1st January, 1919 ...	4	196	5	200	...	...	...	...	...	...	...	...	1	77	10	473
Admitted during year	121	4821	95	2861	5	175	1	58	3	65	1	6	...	...	226	7986
Total ...	125	5017	100	3061	5	175	1	58	3	65	1	6	1	77	236	8459
Cases remaining, 31st December, 1919	27	630	11	207	1	3	...	...	...	...	...	...	...	...	39	843
Cases treated to a termination ...	98	4387	89	2854	4	172	1	58	3	65	1	6	1	77	197	7616

VITAL STATISTICS.

In Table XXIII. are given the principal Vital Statistics for the past five years. It will be seen that the Birth Rate per 1000 of population dropped from 28.2 in 1915 to 24.3 in 1916, and to 22.3 in 1917, at which figure it remained (with slight fractional variation) during the years 1918 and 1919. The Death Rate also fell considerably during the five years, with the exception of the year 1918, the rates being for 1915, 12.4; 1916, 10.6; 1917, 10.7; 1918, 12.1; and for 1919, 9.6. The Tuberculosis Death Rate varied very slightly during the years 1915-18, but in 1919 it was only .73, being just about half what it was in 1915. From the principal epidemic diseases (those asterisked in the Table), the rate for the year 1919 was .60, which is the lowest rate for many years.

The Registrar-General estimates the population of the District at 30,127.

Table XXIII.—CENTRAL DISTRICT.

BIRTHS AND DEATHS REGISTERED DURING THE YEARS 1915-1919.

	1915	1916	1917	1918	1919
Registered Births (Corrected for Transcripts)	784	688	646	665	669
Birth Rate per 1000 of Population ...	28·2	24·3	22·3	22·4	22·2
Deaths from all Causes (Corrected for Transfers)	344	299	309	360	259
Death Rate per 1000 of Population ...	12·4	10·6	10·7	12·1	9·6
CAUSES OF DEATH					
*Enteric Fever	3	1	...	1	...
Typhus Fever ... ..	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...
*Measles	1	8	6	12	1
*Scarlet Fever	2	4	2	1	1
*Whooping-Cough	4	6	20	10	5
*Diphtheria and Croup	1	3	4	3	3
Influenza	2	3	...	4	1
Erysipelas	1	...	...	...	2
Phthisis, Pulmonary Tuberculosis ...	27	19	20	30	12
Tuberculous Meningitis	2	2	3	3	6
Abdominal Tuberculosis	4	8	3	1	1
Other Tuberculous Diseases	5	3	5	2	3
Cancer, Malignant Disease	30	18	19	25	23
Rheumatic Fever ... ..	...	...	...	4	...
Meningitis	8	7	3	4	4
Organic Heart Disease	28	23	31	33	25
Bronchitis	24	11	10	20	19
Pneumonia (all forms)	20	22	20	68	40
Other Diseases of Respiratory Organs ...	2	4	6	2	5
*Diarrhoea and Enteritis (under 2 years)	10	7	6	3	8
Appendicitis and Typhlitis ... ..	...	1	...	1	4
All Liver Diseases (not Malignant) ...	3	...	1	...	...
Other Diseases of Digestive System (under 2 years)	4	16	14	11	14
Nephritis and Bright's Disease	7	5	6	9	8
Puerperal Sepsis	1	1	1	...	1
Other Diseases and Accidents of Preg- nancy and Parturition	3	1	4	2	4
Congenital Debility and Malformation including Premature Birth	38	21	18	20	22
Violent Deaths, excluding Suicide ...	16	18	18	12	7
Suicide	2	1	...	...	...
Other Defined Diseases	89	71	82	73	65
Diseases Ill-defined or Unknown ...	7	15	7	6	5
Deaths under 1 year	80	51	52	46	56
Infantile Death Rate (Deaths under 1 year per 1000 Births)	102	74	80	69	84
Tuberculosis Death Rates	1·4	1·1	1·1	1·2	·73
Phthisis only	1·0	·7	·7	1·0	·40
Principal Epidemic Diseases (those asterisked above)	·8	1·0	1·3	1·0	·60

EASTERN DISTRICT.

HOUSING.

New Buildings — Northern Division.—During the years 1915-1918 (inclusive), 14 plans were approved by the Committee, six being for new buildings, including two Nurses' Homes (one at Larbert and one at Bonnybridge). The actual number of new dwelling-houses embraced in the plans was 17, of which 15 were of two apartments and two of three apartments.

In the year 1919, only one plan was submitted, which referred to alterations on an existing dwelling-house.

Southern Division.—In this Division, 12 plans were passed in the period 1915-1918, of which only two related to new dwelling-houses. Ten of the plans were for additions and alterations to existing buildings.

Four plans were approved during the year 1919, two of which were for additions to existing cottages, the other two being for a new bakery and the conversion of a mill into a hall respectively. No plans were submitted for new dwelling-houses.

Housing Survey.—As explained in the County part of the Report, a survey of existing housing was initiated during the year. The survey for the Eastern District, however, had not been completed by the end of the year.

Table XXIV. gives the results of the survey so far as it has been completed, the number of houses inspected being 3326, which represents approximately about two-fifths of the total number of houses in the District.

Table XXIV.—STATEMENT OF RESULTS OF INQUIRY INTO HOUSING CONDITIONS IN THE EASTERN DISTRICT SO FAR AS INSPECTED, 1919.

Condition of Houses.	NUMBER OF APARTMENTS.				Total
	One	Two	Three	Four and over	
(1) Houses fit for Human Habitation	111	683	324	382	1500
(2) Houses that can be made fit for Human Habitation	292	833	210	153	1488
(3) Houses that can not be made fit for Human Habitation	147	151	25	15	338
Total	550	1667	559	550	3326*
Number of New Houses required to replace (3)					338
Also, say one-half of (1) and (2) one-apartment houses when these are converted into two-apartment houses					200
And, say one-third of (1) and (2) two-apartment houses when these are converted into three-apartment houses					500
Total Number of New Houses required to replace existing houses and to raise the general housing standard					1038

*Total houses in District—roughly, 8500.

Housing Schemes. — After full consideration of the necessity for housing in the District, the Committee agreed to prepare a Scheme for the erection of 600 houses, distributed as follows :—

Parish of Airth	25 houses
Parish of Falkirk	169 houses
Parish of Larbert	200 houses
Parish of Muiravonside	73 houses
Parish of Grangemouth (Landward)	117 houses
Parish of Slamannan	16 houses

In 1919 a whole-time Architect with necessary staff was appointed, who prepared plans, schedules, etc., for the various districts, and since the end of the year considerable progress has been made in the erection of the first instalments of houses at Bonnybridge and Larbert, while offers have been received for the Avonbridge Scheme. At the same time the preliminary work is being energetically tackled in connection with sites in the other parts of the District.

WATER SUPPLY.

With the exception of one or two outlying farms, no complaint of scarcity has been received during the past five years, and even in the long period of drought experienced in 1919, the water supply was ample. The exceptions above referred to were dependent on a private supply, and the farms are now being connected with the East Stirlingshire water main.

DRAINAGE.

The drainage and sewerage of the District has been kept under careful supervision by the Sanitary Inspectors, and various chokages have been attended to.

In the Polmont Special District during the year 1919, a subsidence of certain disused mineral workings caused some trouble, and it was found necessary to relay a section of the sewer for about 50 yards.

Cobblebrae Works have received much thought and attention both from the Committee and from the Sanitary Inspector. During the year 1919, some much-needed repairs were carried out, especially on the valves in the sewage tanks and in connection with the engine for pumping the sludge. A good deal of money was spent, but there is no doubt that considerable improvement was effected.

EASTERN DISTRICT—WATER ANALYSES.

No.	Where Sample taken and Date.	Result.	Action Taken.
1916.			
1 April 11th.	From Pump in Boiler House, Loanfoot Farm, Falkirk Parish.	Polluted.	
2 July 3rd.	From Pump Well in Garden, Muirrig, Falkirk Parish.	Satisfactory.	
4 August 29th.	From Draw Well, Binnichill, Slamannan Parish.	Satisfactory.	
5 September 21st.	From Shallow Dip Well in front of Seafield Farm House, Falkirk Parish.	Polluted.	Cause of pollution diverted.
6 September 21st.	From Small Burn east of Seafield Farm House, Falkirk Parish.	Satisfactory.	
7 September 18th.	From Tap in Scullery, Auchengau Schoolhouse, Falkirk Parish.	Satisfactory.	
8 September 18th.	From Sunken Farrel south of Scullery, Glenrig Farm, Falkirk Parish.	Satisfactory.	
1917.			
1 May 2nd.	From Skailh Muir Mill, Carron, Larbert Parish.	Polluted.	
2 May 2nd.	" " " " " "	Polluted.	Falkirk and Larbert Gravitation Supply to be introduced.
3 May 2nd.	" " " " " "	Polluted.	
4 May 2nd.	" " " " " "	Polluted.	
1918.			
1 July 26th.	From Carse Ditch, Bowhouse Plank, Grange-mouth Parish.	Satisfactory.	
1919.			
1 July 29th.	From Beam Burn, High Bonnybridge, Falkirk Parish.	Satisfactory.	

FACTORY AND WORKSHOP ACT.

The number of workshops on the register as at the end of 1919, was 111, employing 305 workpeople, of whom 138 were women, and 28 were young persons or children. One hundred and thirty-five inspections were made during the year, but no statutory proceedings were necessary, the workshops being found to be kept in good order.

During the years 1915-1918 the workshops and workplaces in the District have been kept under careful sanitary supervision, and it has seldom been found necessary to make any complaint.

INFECTIOUS DISEASE.

The total number of cases of infectious disease notified in the Eastern District during the four unreported years 1915-1918 was 1843, there being 854 cases dealt with in 1915, 479 in 1916, 231 in 1917, and 279 in 1918.

Of the 1843 notifications, 498 were of Diphtheria, 97 of Erysipelas, 945 of Scarlet Fever, 41 of Enteric Fever, 6 of Puerperal Fever, 8 of Cerebro-Spinal Fever, 147 of Pulmonary Tuberculosis, and 101 of Non-Pulmonary Tuberculosis. Table XXV. gives the figures for the four years.

Table xxv. EASTERN DISTRICT.—CASES OF INFECTIOUS DISEASE COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH DURING THE YEARS 1915-1918.

Year		Smallpox	Diphtheria and Membranous Croup	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Puerperal Fever	Cerebro-Spinal Fever	Acute Poliomyelitis	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Total
1915—No. of Cases	223	35	517	...	3	...	2	4	...	44	26	854
No. Removed to Hospital, &c.	174	...	336	...	3	...	...	3	...	20	...	536
1916—No. of Cases	103	36	259	...	12	...	...	3	...	34	32	479
No. Removed to Hospital, &c.	83	...	205	...	10	...	...	2	...	19	3	322
1917—No. of Cases	46	13	93	...	11	...	2	...	...	39	27	231
No. Removed to Hospital, &c.	36	...	80	...	9	...	...	...	...	16	1	142
1918—No. of Cases	126	13	76	...	15	...	2	1	...	30	16	279
No. Removed to Hospital, &c.	110	...	65	...	12	...	...	...	...	11	...	198
Average No. of Cases, 1915-18	124.5	24.2	236.2	...	10.2	...	1.5	2	...	36.7	25.2	460.3
Mean Percentage of Cases Removed to Hospital, &c.	80.9	...	72.7	...	83	...	...	62.5	...	44.9	3.9	65.0

It will be seen that from Scarlet Fever the number of notifications dropped from 517 in 1915, to 93 in 1917, and 76 in 1918, and that from Diphtheria there was a decrease in the notifications, there being 223 in 1915, 103 in 1916, and only 46 in 1917, but in 1918 the number again rose to 126. The low incidence of infectious disease, especially of Scarlet Fever and Diphtheria, in the years 1917 and 1918, was noticeable all over the country.

In 1919, the number of cases of infectious disease notified in the District was 259, which is rather less than in the preceding year, and more than in 1917. Tables XXVI. and XXVII. give the figures.

Table XXVI.—EASTERN DISTRICT—CASES OF INFECTIOUS DISEASE COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH DURING THE YEAR 1919.

Parish	Smallpox	Diphtheria and Membranous Croup	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Purpural Fever	Cerebro-Spinal Fever	Ophthalmia Neonatorum	Malaria	Dysentery	Trench Fever	Acute Primary Pneumonia	Acute Influenzal Pneumonia	Tuberculosis		Total
																Pulmonary	Non-Pulmonary	
Larbert	...	29	6	25	...	...	...	...	2	...	8	...	...	...	...	10	2	82
Falkirk	...	51	10	18	...	...	...	...	1	2	4	...	...	...	1	8	4	109
Grangemouth	...	8	...	10	...	...	...	...	...	...	...	...	...	...	...	4	4	26
Airth	...	12	...	6	...	...	...	...	...	...	2	...	...	...	...	1	...	9
Muiravonside	...	3	...	7	...	...	...	...	...	...	3	1	...	...	...	2	4	18
Slamannan	...	1	...	7	...	...	...	...	...	1	3	...	...	...	...	1	1	15
Totals	...	94	16	83	...	...	...	...	3	3	17	1	..	...	1	26	15	259
Removed to Hospital	...	88	2	60	...	...	...	...	3	...	...	...	...	...	...	17	1	171

Table XXVII.—EASTERN DISTRICT.

RETURN OF CASES OF INFECTIOUS DISEASE NOTIFIED, &c.,
DURING THE YEAR ENDING 31ST DECEMBER, 1919.

Population, Census 1911, 41,745. Population estimated to middle of 1919,
41,109.

DISEASE	NUMBER OF CASES COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH								
	At Age—Years							Cases removed to Hospital	Cases not removed to Hospital
	At all Ages	Under 1 Year	1 and under 5	5 and under 15	15 and under 25	25 and under 45	45 and under 65		

A.—Notified under the Infectious Disease Notification Act, 1859.

Typhoid or Enteric Fever	...	...	...	...	...	...	...	...	...
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...	...
Scarlet Fever or Scarlatina	83	...	21	50	9	3	...	60	23
Diphtheria and Membranous Croup	94	2	18	61	10	3	...	88	6
Erysipelas	16	...	1	2	2	6	5	2	14
Puerperal Fever ... ..	...	...	...	...	...	...	...	...	...
Cholera ... ..	...	...	...	...	...	...	...	...	...
Relapsing Fever ... ..	...	...	...	...	...	...	...	...	...
Continued Fever ... ..	...	...	...	...	...	...	...	...	...
Cerebro-Spinal Fever ...	3	...	...	1	1	1	...	3	...
Total	196	2	40	114	22	13	5	153	43

*B.—Notified in terms of Regulations made under Section 78 of the
Public Health (Scotland) Act, 1897.*

Ophthalmia Neonatorum	3	3	...	...	...	...	...	...	3
Malaria	17	...	...	...	1	12	4	...	17
Dysentery	1	...	...	...	...	1	...	...	1
Trench Fever ... ..	...	...	...	...	...	...	...	...	...
Acute Primary Pneumonia	...	...	...	...	...	...	...	...	...
Acute Influenzal Pneumonia	1	...	...	...	1	...	...	...	1
Pulmonary Tuberculosis ..	26	...	1	2	9	13	1	17	9
Non-Pulmonary Tubercu- culosis... ..	15	1	3	8	2	1	...	1	14
Total of A and B ...	259	6	44	124	35	40	10	171	88

From **Scarlet Fever**, the number of notifications was 60, 28 of them being from Falkirk Parish, 25 from Larbert, 10 from the Parish of Grangemouth, 7 each from the Parishes of Muiravonside and Slamannan, and 6 from the Parish of Airth.

In January I had a 'phone message from the Medical Officer of the Burgh of Falkirk saying that an outbreak had occurred in connection with a dairy there, and that the circumstances pointed to the milk supply from a dairy farm in the Eastern District. I visited the farm with Dr Prangnell, and found that a little girl had been ill for about 10 days. There was no evidence, however of Scarlet Fever, but on the off-chance of her having had a mild attack, I had her removed to the house of a friend in an isolated part of the district, where she was kept under observation. There was no further development.

Diphtheria.—Ninety-four cases of Diphtheria were notified, 51 from Falkirk Parish, 29 from Larbert Parish, 8 from the Parish of Grangemouth, 3 from Muiravonside, 2 from Airth, and one from the Parish of Slamannan. Of the 94, 88 were treated in Hospital. There were four deaths.

Cerebro-Spinal Fever.—Three cases occurred, two of them in the Parish of Larbert and one in Falkirk Parish. All three were removed to Hospital, and two died.

Ophthalmia Neonatorum.—In the three cases notified, in each case a medical man was in attendance, so that the child received proper attention.

Malaria and Dysentery.—In each case the person notified was an ex-soldier, who had contracted the disease abroad, and most of the patients were able to attend to their usual duties.

Tuberculosis.—The number of cases of Pulmonary Tuberculosis notified was 26, and of Non-Pulmonary 15. This disease is more fully dealt with in the County part of the Report.

CAMELON HOSPITAL, 1915-1918.

During the four years 1915 to 1918 (inclusive), 1,179 cases were treated in the Hospital, 719 of which were of Scarlet Fever, 409 of Diphtheria, 33 Enteric Fever, 9 of Cerebro-Spinal Fever, and 19 of other diseases.

The following table gives the details :—

Year	Scarlet Fever	Diphtheria	Enteric Fever	Cerebro-Spinal Fever	Other Diseases	Grand Total	Deaths
1915	336	185	3	4	5	550	35
1916	221	87	6	2	2	317	17
1917	110	36	9	0	8	133	11
1918	52	101	15	3	4	179	13
	719	409	33	9	19	1179	76

The deaths from Scarlet Fever numbered 20, equal to a fatality of 2.7 per cent. From Diphtheria the deaths were 46, or 11 per cent. of the cases treated. Four of the Enteric cases died, giving a fatality rate of 12.1 per cent., and of the 9 cases of Cerebro-Spinal Fever cases treated 5 died.

The Matron reports as follows, for the year 1919 :—

The number of admissions to Camelon Hospital during 1919 was 212, being 9 more than in the previous year. At the end of 1918 there were in the wards 32 cases, and at the end of 1919 there were 35 cases, so that the number treated to a termination was 209. Of the above 212 admissions, 6 were from Stirling Burgh, and 40 from the Central District.

The total length of residence of the 209 cases was 7267 days, the average length of residence being 34.161 days. Up to the end of the year the total length of residence of the 35 cases still remaining in the wards was 445 days, and up to the end of 1918 the total length of residence of the 32 cases then in the wards was 429 days. Adding the 429 to the 7267, and deducting the 445 gives a total of 7251 days, which gives a daily average of 19.316 cases in the wards.

The number of Scarlet Fever cases treated to a termination was 85. The total length of residence of these was 3826 days, averaging 44.86 days. Three cases died.

There were 2 cases of Enteric Fever treated to a termination. The length of residence was 53 days, giving an average of 26.1. One case died.

There were 104 cases of Diphtheria treated to a termination. The total length of residence of these was 2809 days, giving a daily average of 27.1 days. Three cases died.

There were 5 cases of Cerebro-Spinal Meningitis treated to a termination. The total length of residence of these was 199 days, averaging 39.4 days. Three cases died.

Eight cases of Phthisis were treated to a termination. The total length of residence of these was 298 days, giving an average of 37.2 days. Four cases died.

Three cases of Erysipelas were treated to a termination. The total length of residence of these was 64 days, averaging 21.1 days.

There was one case of Puerperal Fever treated. The patient only lived two days.

One case of Pneumonia died 12 hours after admission.

Table XXVIII.—ADMISSIONS TO CAMELON HOSPITAL, 1919.

Age in Years.	0—5		5—10		10—20		20—30		30—40		40—50		Over 50		Total		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Both
<i>Scarlet Fever</i> —																	
Recovered	10	10	10	13	11	8	2	3	...	1	...	...	...	...	33	35	68
Died	1	1	1	...	...	...	...	...	...	...	...	...	...	...	2	1	3
Remaining	4	6	2	2	1	5	...	...	...	...	...	...	...	...	7	13	20
<i>Enteric Fever</i> —																	
Recovered	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1
Died	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	1
<i>Diphtheria</i> —																	
Recovered	11	14	16	17	10	10	1	2	...	2	...	...	...	...	38	45	83
Died	2	1	...	...	...	...	...	...	...	...	...	...	...	...	2	1	3
Remaining	2	2	4	2	2	2	...	...	...	...	...	...	...	...	8	6	14
<i>C. S. Meningitis</i> —																	
Recovered	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	2
Died	...	...	...	...	1	...	1	...	1	...	...	...	...	...	3	...	3
<i>Phthisis</i> —																	
Recovered	...	...	...	...	...	1	...	1	1	...	1	...	...	...	2	2	4
Died	...	...	1	...	...	...	...	1	2	...	...	...	...	...	3	1	4
Remaining	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	1
<i>Erysipelas</i> —																	
Recovered	...	...	...	...	...	...	...	...	...	...	1	2	...	...	1	2	3
<i>Puerperal</i>																	
Died	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	1
<i>Pneumonia</i>																	
Died	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1
Total	30	34	36	34	25	26	5	8	5	4	3	2	...	...	104	108	212

VITAL STATISTICS.

The population of the District is estimated by the Registrar General at 41,109, as at the middle of 1919. Table XXIX. shows Births and Deaths together with the rates per 1000 of population for the past five years. The Birth Rate in the Eastern District for the years immediately preceding the outbreak of war (and including 1914) was roughly 29 per 1000 of population. In 1915 the rate fell to 26.7, in 1916 to 24.7, and reached its lowest in 1917—21.4. In 1918 it rose to 22.2, and in 1919 to 24.5.

The Death Rate in 1919 was 12.1, which is slightly below the average for the past 10 years. The Death Rate from Tuberculosis has been fairly constant for the last five years at 1.1, with a slight rise to 1.3 in 1918, and a corresponding fall in 1919 to .78.

Table XXIX. EASTERN DISTRICT.

BIRTHS AND DEATHS REGISTERED DURING THE YEARS 1915-1919.

	1915	1916	1917	1918	1919
Registered Births (Corrected for Transcripts)	1088	1007	876	914	1009
Birth Rate per 1000 of Population ...	26·7	24·7	21·4	22·2	24·5
Deaths from all Causes (Corrected from Transfers)	547	497	490	560	499
Death Rate per 1000 of Population ...	13·4	12·2	12·0	13·6	12·1
CAUSES OF DEATH					
*Enteric Fever ... ..	...	1	2	3	...
Typhus Fever ... ..	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...
*Measles	5	8	22	6	5
*Scarlet Fever	14	8	4	3	1
*Whooping-Cough	10	6	24	12	18
*Diphtheria and Croup	25	14	9	14	4
Influenza ... ..	...	2	1	18	6
Erysipelas	3	...	1	...	...
Phthisis, Pulmonary Tuberculosis ...	28	27	24	36	18
Tuberculous Meningitis	5	6	7	5	5
Abdominal Tuberculosis	4	7	7	4	4
Other Tuberculous Diseases	8	5	5	7	5
Cancer, Malignant Disease	33	22	32	35	36
Rheumatic Fever ... ..	...	1	2	1	2
Meningitis	12	4	6	9	6
Organic Heart Disease	56	56	51	53	40
Bronchitis	47	38	22	37	31
Pneumonia (all forms)	49	36	41	111	73
Other Diseases of Respiratory Organs ...	6	10	3	11	6
*Diarrhoea and Enteritis (under 2 years)	10	8	11	3	10
Appendicitis and Typhlitis	2	3	2	4	5
All Liver Diseases (not Malignant) ...	4	9	5	2	3
Other Diseases of Digestive System (under 2 years)	3	15	17	16	16
Nephritis and Bright's Disease	9	12	8	7	8
Puerperal Sepsis	1	4	1	2	...
Other Diseases and Accidents of Preg- nancy and Parturition	3	4	6	5	4
Congenital Debility and Malformation, including Premature Birth	40	40	30	40	35
Violent Deaths, excluding Suicide ...	23	22	25	16	23
Suicide	3	...	2	...	1
Other Defined Diseases	127	120	114	89	128
Diseases Ill defined or Unknown ...	12	9	6	11	6
Deaths under 1 year	107	83	93	77	89
Infantile Death Rate (Deaths under 1 year per 1000 Births)	98	82	106	84	88
Tuberculosis Death Rates	1·1	1·1	1·1	1·3	·78
Phthisis only	·7	·7	·6	·9	·44
Principal Epidemic Diseases (those asterisked above)	1·6	1·1	1·8	1·0	·92

WESTERN DISTRICT.

HOUSING.

New Buildings.—Seven sets of plans were approved by the District Committee during the year 1919, being an increase of six on the preceding year. The plans included three new dwellings, one of two apartments and two of four apartments. The other plans were for additions and alterations to existing dwelling-houses and the addition of three new class-rooms to Balfron School.

During the years 1915, 1916, 1917, and 1918 plans were approved for the erection of 13 new houses, and also for additions and alterations to 5 existing buildings.

Unfortunately, for one cause or another, the erection of seven of the proposed new dwellings was not proceeded with. The extraordinary cost was probably the main deterrent.

Housing Survey.—As in the other Districts of the County, I was instructed to initiate a survey of all the dwelling-houses in the Western District. The survey was on the lines explained in the County part of the Report. By the end of the year all the houses in Campsie Parish had been inspected, and Table XXX. gives the numbers of houses of one, two and three apartments divided into the three categories:—(1) Houses fit for human habitation; (2) houses which can be made fit, and (3) houses that can not be made fit for human habitation. The total number of houses in the Parish is 1242, of which 842 are in Category (1), 264 in Category (2), and 136 in Category (3).

Table XXX.—STATEMENT OF RESULTS OF INQUIRY INTO HOUSING CONDITIONS IN THE PARISH OF CAMPSIE.

Condition of Houses.	NUMBER OF APARTMENTS.				Total
	One	Two	Three	Four and over	
(1) Houses fit for Human Habitation	23	363	197	259	842
(2) Houses that can be made fit for Human Habitation	36	183	33	12	264
(3) Houses that can not be made fit for Human Habitation	55	68	9	4	136
Total	114	614	239	275	1242
Number of New Houses required to replace (3)					136
Also, say one-half of (1) and (2) one-apartment houses when these are converted into two-apartment houses					29
And, say one-third of (1) and (2) two-apartment houses when these are converted into three-apartment houses					182
Total Number of New Houses required to replace existing houses and to raise the general housing standard					347

Housing Scheme.—The District Committee resolved, as a first instalment of a Housing Scheme, to undertake the building of 50 houses, to be distributed as follows, viz. :—35 in Lennoxtown and Milton of Campsie, and 5 in Torrance, leaving 10 to be allocated to other parts of the District where housing is required for agricultural labourers or otherwise. The Scheme is being carried out under the supervision of a part-time Architect.

Sites have been acquired at Milton of Campsie and Lennoxtown, and have been approved by the Scottish Board of Health. Lay-out plans of these sites and the type plans of the houses have also been approved by the Board. Offers have been accepted from contractors for the work required in connection with the erection of ten houses at Milton, four of four apartments and six of three apartments. The schedules are being prepared for the Lennoxtown scheme, which includes ten houses of four apartments and fourteen houses of three apartments.

WATER SUPPLY.

Few complaints have been received regarding water supply, there having been only two in 1919. One of the chief complaints is as to sediment in the Milton of Campsie supply, and this is receiving the careful attention of the Committee. Various improvements to private supplies have been made under the supervision of the Sanitary Inspector.

The following is a note of the samples taken for analysis during the last five years :—

WESTERN DISTRICT—WATER ANALYSES.

No.	Where Sample taken and Date.	Result.	Action Taken.
1915.			
1 February 9th.	From Ball Cock, Craigend Castle, Strathblane Parish.	Satisfactory.	
2 June 22nd.	From Tap in Kitchen, Blairquhosh, Strathblane Parish.	Satisfactory.	
3 July 10th.	From Pump Well, Carslon Farm, Killearn Parish.	Polluted.	Nothing done.
4 August 10th.	From New Well, Jaw, Baldernoch Parish.	Satisfactory.	
5 September 22nd.	From Tank at foot of Rock, Mill House, Gartness, Killearn Parish.	Satisfactory.	
6 September 29th.	From Tap at Dungoyne Saw Mill, Killearn Parish.	Satisfactory.	
7 September 29th.	From Hill Stream, near Lettre Farm, Killearn Parish.	Polluted.	
8 September 29th.	From Pump Well, Carslon Farm, Killearn Parish.	Polluted.	Not used as a domestic supply.
9 October 8th.	From Hill Stream, near Lettre Farm, Killearn Parish.	Polluted.	Nothing done.
10 November 19th.	From Spout on L rumore Haugh, Killearn Parish.	Satisfactory.	See No. 7.
1916.			
1 March 22nd.	From Tap in Kitchen in Endrickfield House, near Balfroun, Killearn Parish	Polluted.	
2 August 25th.	From Tap in Parish Manse, Killearn, Killearn Parish.	Satisfactory.	Supply discontinued.
3 August 25th.	From Reservoir, Killearn, Killearn Parish.	Satisfactory.	
4 October 10th.	From Spout, Strathblane Home Hospital, Strathblane Parish.	Polluted.	Rectified.

WESTERN DISTRICT—WATER ANALYSES (Continued).

No.	1917.	Where Sample taken and Date.	Result.	Action Taken.
1	March 7th.	From Spring in field, Gartinstarry, Buehlyvie, Drymen Parish.	Satisfactory.	
2	March 7th.	From Tap in Auchentroig Gardens, Buehlyvie, Drymen Parish.	Polluted.	Temporary manurial pollution. Satisfactory now.
3	May 2nd.	From Tap in Pantry at Auchentroig House, Drymen Parish.	Satisfactory.	
4	July 4th.	From Tap in Scullery of Croy Cunningham Farm House, Killearn Parish.	Polluted.	Temporary pollution, satisfactory now.
5	July 26th.	From Tank near Spittal Farm, supplying Croy Cunningham Farm, Killearn Parish.	Polluted.	Do., do.
6	September 19th.	From Bathroom Tap, Parkview House, Milton of Campsie, Campsie Parish.	Satisfactory.	
7	November 21st.	From Pump Well at Carston Farm, Killearn Parish.	Polluted.	Nothing done.
1918.				
1	July 8th.	From Bath Tap in View Park House, Milton of Campsie, Campsie Parish.	Satisfactory.	
2	July 24th.	From Pump Well at West Muckcroft Cottage, Campsie, Campsie Parish.	Satisfactory.	
1919.				
1	March 21st.	From Windmill at Holish Farm, Drymen Parish.	Satisfactory.	
2	May 19th.	From Pump Well at Carston Farm, Killearn Parish.	Polluted.	Nothing done.
3	July 14th.	From Cattle in Field at Carston Farm, Killearn Parish.	Polluted.	Nothing done.
4	September 1st.	Do., do.	Polluted.	Nothing done.
5	October 17th.	From Holm Burn, Balfour Parish.	Satisfactory.	
6	October 21st.	From Balikinran Burn in Sir Archibald's Plantation, Killearn Parish.	Satisfactory.	
7	October 21st.	From Macfar Burn at a point in line with South Fence High Wood, Killearn Parish.	Satisfactory.	

Note.—The supply to Carston Farm still continues unsatisfactory.

INFECTIOUS DISEASES.

The total number of cases of infectious disease notified during the years 1915-1918 was 234—77 in 1915, 89 in 1916, 46 in 1917, and 22 in 1918. Scarlet Fever showed a great diminution in the number of cases, there being 49 in 1915, 44 in 1916, 17 in 1917, and a single case in 1918. These low figures for Scarlet Fever in 1917 and 1918 are very remarkable, but are in common with the experience in other parts of the country.

For the year 1919, the figures for all the infectious diseases were : — Diphtheria, 11 ; Erysipelas, 4 ; Scarlet Fever, 7 ; Malaria, 3 ; Dysentery, 5 ; Pulmonary Tuberculosis, 9 ; Non-Pulmonary Tuberculosis, 4. During the year certain diseases were added to the notifiable list, namely, Malaria, Dysentery, Trench Fever, Acute Primary Pneumonia, and Acute Influenzal Pneumonia.

Tables XXXI., XXXII., and XXXIII. give particulars.

Table XXXI,--WESTERN DISTRICT.--CASES OF INFECTIOUS DISEASE COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH DURING THE YEARS 1915-1918.

Year	Smallpox	Diphtheria and Membranous Group	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Puerperal Fever	(Cerebro-Spinal Fever	Acute Poliomyelitis	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Total
1915--No. of Cases No. Removed to Hospital, &c.	5 3	5 ...	49 37	... ...	1 ...	... ...	1 ...	... ...	... ...	9 1	7 ...	17 41
1916--No. of Cases No. Removed to Hospital, &c.	13 11	8 ...	44 36	... ...	2 2	... ...	... ...	... ...	... ...	13 2	9 1	89 35
1917--No. of Cases No. Removed to Hospital, &c.	2 2	3 ...	17 13	... ...	3 3	... ...	1 1	1 ...	... ...	11 3	8 ...	46 22
1918--No. of Cases No. Removed to Hospital, &c.	6 5	... ...	1 1	... ...	2 1	... ...	... ...	... ...	... ...	11 3	2 ...	22 40
Average No. of Cases, 1915-18 Mean Percentage of Cases Removed to Hospital, &c.	6.5 80.7	4 ...	27.7 78.3	... ...	2 75	......	.5 50	.25 ...	... ...	11 27.2	6.5 3.8	58.5 51.7

Table xxxii.—WESTERN DISTRICT—CASES OF INFECTIOUS DISEASE COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH DURING THE YEAR 1919.

Parish	Smallpox	Diphtheria and Membranous Croup	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Pu-erperal Fever	Cerebro-Spinal Fever	Ophthalmia Neonatorum	Malaria	Dysentery	Typhoid Fever	Acute Primary Pneumonia	Acute Influenzal Pneumonia	Tuberculosis		Total
																Pulmonary	Non-Pulmonary	
Buchanan	3	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Balfour	1	...	...	...	...	...	...	...	...	5	...	...	...	2	3	13
Drymen	1	...	2
Baldernock	3	...	...	...	...	1	...	1
Campsie	...	11	1	2	...	...	...	...	...	...	...	...	...	...	...	4	...	21
Killearn	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	3
Fintry
Strathblane	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	...	11	4	7	...	...	...	...	...	...	3	2	...	...	...	9	4	43
Removed to Hospital	...	9	...	6	...	...	...	...	...	...	...	1	...	...	...	3	...	19

Table XXXIII. — WESTERN DISTRICT.

RETURN OF CASES OF INFECTIOUS DISEASE NOTIFIED, &c.,
DURING THE YEAR ENDING 31ST DECEMBER, 1919.

Population, Census 1911, 11,659. Population estimated to middle of 1919,
11,424.

DISEASE	NUMBER OF CASES COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH									
	At all Ages	At Age—Years						Cases removed to Hospital	Cases not removed to Hospital	
		Under 1 Year	1 and under 5	5 and under 15	15 and under 25	25 and under 45	45 and under 65	65 and upwards		

A.—Notified under the Infectious Disease Notification Act, 1889.

Typhoid or Enteric Fever	...	...	...	...	...	...	...	...	...	...
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...	...	...
Scarlet Fever or Scarlatina	7	...	4	2	1	...	...	...	6	1
Diphtheria and Membranous Croup	11	...	2	7	2	...	...	...	9	2
Erysipelas	4	1	...	...	...	3	...	...	...	4
Puerperal Fever ... ..	...	...	...	...	...	...	...	...	...	...
Cholera ... ..	...	...	...	...	...	...	...	...	...	...
Relapsing Fever ... ..	...	...	...	...	...	...	...	...	...	...
Continued Fever ... ..	...	...	...	...	...	...	...	...	...	...
Cerebro-Spinal Fever ...	...	...	...	...	...	...	...	...	...	...
Total	22	1	6	9	3	3	...	...	15	7

*B.—Notified in terms of Regulations made under Section 78 of the
Public Health (Scotland) Act, 1897.*

Ophthalmia Neonatorum	...	...	...	...	...	...	...	...	...	...
Malaria	3	...	...	...	2	1	...	...	...	3
Dysentery	5	...	3	2	...	...	...	...	1	4
Trench Fever ... ..	...	...	...	...	...	...	...	...	...	...
Acute Primary Pneumonia	...	...	...	...	...	...	...	...	...	...
Acute Influenzal Pneumonia	...	...	...	...	...	...	...	...	...	...
Pulmonary Tuberculosis...	9	...	...	...	5	4	...	...	3	6
Non-Pulmonary Tuber- culosis... ..	4	...	...	1	1	2	...	...	...	4
Total of A and B ...	43	1	9	12	11	10	...	...	19	24

Diphtheria.—The 11 cases of Diphtheria were all notified from the Parish of Campsie. Nine of the cases were removed to Hospital. There were no deaths.

Scarlet Fever.—Three of the seven cases were in the Parish of Balfron, two in the Parish of Campsie, and one each in the Parishes of Killearn and Strathblane. All but one were removed to Hospital.

Malaria and Dysentery.—Three cases of Malaria and five of Dysentery were notified. The Malaria cases were all Army pensioners, who had contracted the disease while serving abroad. All were able to attend to their usual work. With regard to the five Dysentery cases, three of them were children of a discharged soldier, who had suffered from Dysentery while in the Army. He had been discharged twelve months previously. One of the three cases proved fatal. The other two cases, both young children, probably received their infection from the three children above mentioned. All five were in the habit of playing together, and in addition, the mother of the two children was in the habit of getting a little milk from the first mentioned family, who kept a cow for their own use.

Tuberculosis.—Nine cases of Phthisis were notified, and 4 cases of Non-Pulmonary Tuberculosis. These diseases, however, are dealt with at more length in the County part of the Report.

Smallpox Contact.—In July I received a note from the Medical Officer of Health of Kirkintilloch that he had a notification of a case of Smallpox in the Burgh, and that a girl, a domestic servant in a house in the County, was a contact.

I lost no time in visiting the house referred to. On arrival I found that the girl's mistress was aware of the circumstances, and she informed me that the girl who opened the door was the contact referred to; also, that the girl went home to Kirkintilloch each night, and returned in the morning to her duties, as a domestic servant. I said that the girl should be vaccinated or revaccinated, and that I had material for doing that with me. I also said that it would be well to keep her under observation during the incubation period. I thought that could best be done by arranging for her to sleep in an observation ward of Lennox Hospital—about 15 minutes distant by road. The plan was to have her condition observed each evening on return, thereby causing nobody inconveni-

ence or trouble, and at the same time making certain that any departure from the normal in her health would immediately receive medical attention.

When, however, the mistress told the girl that I wished to see her, she refused to come, and it transpired that there had already been some hitch in her being vaccinated or revaccinated.

I have fully reported the circumstances of this case as an illustration of the helplessness of health authorities in such circumstances. There is generally no difficulty in persuading even anti-vaccinators under such circumstances to submit to vaccination, but as the law stands at present there is no power to compel any person to be vaccinated or revaccinated, who thus becomes a potential danger to a whole community. I am not so much concerned with regard to the individual as with the danger to the public. The individual in such a case in my opinion should not count. The rights of democracy have for years been strongly advocated, and it seems to me high time that the Legislature tackled and solved the problem of vaccination on proper democratic lines, so that no individual should be allowed to be a menace to the community.

FACTORY AND WORKSHOP ACT.

Forty-two inspections were made during 1919, 40 being of workshops and two of workplaces. One defect, relating to want of cleanliness, was found, and, after a written notice, was remedied. One list of outworkers was received. The number of workshops registered within the District is 46.

LENNOX HOSPITAL, 1915-1919.

The number of cases treated in Lennox Hospital during the four years, 1915-1919, was 549, of which 271 were from the Eastern District of Dumbartonshire, 125 from the Western District of Stirlingshire, and 153 from the Burgh of Kirkintilloch. The following is a note of the different diseases dealt with in each of the years :—

LENNON HOSPITAL, 1915-1919

District	Scarlet Fever				Diphtheria				Enteric Fever				Others				Total				Grand Total
	1915	1916	1917	1918	1915	1916	1917	1918	1915	1916	1917	1918	1915	1916	1917	1918	1915	1916	1917	1918	
West Stirlingshire ...	38	34	14	1		4	13	2	5		2	4	1		...	7	42	49	20	14	125
East Dumbartonshire	113	70	18	20	6	3	3	5	23	2	3	1			3	...	143	75	27	26	271
Kirkintilloch ...	29	24	4	12	20	10	8	30	1	...	2	...			3	1	54	39	17	43	133
	180	128	36	33	30	26	13	40	24	4	9	2			5	8	239	163	64	83	519

The total days residence of all the cases was 18,973 days, giving an average daily residence of 34.5 days, and the average number of cases in the wards during the four years was 13.

The deaths from Scarlet Fever cases treated numbered 8, from Diphtheria 6, and from Enteric 2.

The following is the Matron's report for the year 1919:—

The total admissions to this Hospital during the year 1919 amounted to 177 patients; of that total 26 were from Eastern Dumbartonshire, 19 were from Western Stirlingshire, 132 were from the Burgh of Kirkintilloch.

Of the 26 cases from Eastern Dumbartonshire, there were none outwith the primary area.

Of the 19 cases from Western Stirlingshire, there were 5 outside the primary area of the combination.

Of the 26 cases from East Dumbartonshire, there were 15 of Scarlet Fever, 3 of Enteric Fever, 7 of Diphtheria, 1 of Puerperal.

Of the 19 cases from Western Stirlingshire, there were 6 of Scarlet Fever, 7 of Diphtheria, 3 Bronchial Pneumonia after Influenza, 1 of Phthisis, 1 of Syphilis, 1 of Dysentery.

Of the 132 cases from the Burgh of Kirkintilloch, there were 13 of Scarlet Fever, 1 of Enteric Fever, 104 of Diphtheria, 2 of Phthisis, 1 Pneumonia after Influenza, 1 of Observation Smallpox, 3 of Measles, 7 of Influenza.

Of the 34 cases of Scarlet Fever, 28 recovered, 6 remained under treatment.

Of the four cases of Enteric Fever, 3 recovered, 1 died.

Of the 118 cases of Diphtheria, 105 recovered, 4 remained under treatment, 9 died.

Of the 3 cases of Measles all recovered.

Of the 7 cases of Influenza all recovered.

Of the 4 cases of Bronchial Pneumonia all recovered.

Of the 3 cases of Phthisis 2 were sent home, and 1 died.

The one case of Syphilis died from arsenical and mercurial poisoning.

The one case of Puerperal recovered.

The one case of Dysentery recovered.

The one case of Observation Smallpox recovered.

At the end of the year 1918 there were 8 patients in the wards, namely: — 5 Scarlet Fever, 3 Diphtheria — all recovered.

Of the 4 cases of Enteric Fever treated to a termination, 3 recovered, 1 died after being in hospital 19 days.

Of the 117 cases of Diphtheria treated to a termination, 108 recovered; 9 died after being in Hospital 15, 5, 9, 17, 5, 9, 6, 1, 6 days respectively.

By the end of the year 1919, the total length of residence of the 10 patients in the wards was 254 days, and up to the end of the year 1918 the length of residence of the 8 patients yet in the wards was 176 days. Adding the former and deducting the latter gives a total of 4568 days.

The average length of residence was 25.36 days.

The total length of residence of the 34 cases of Scarlet Fever was 1174 days, giving an average of 34.52 days.

The total length of residence of the 4 cases of Enteric Fever was 84 days, giving an average of 21 days.

The total length of residence of the 118 cases of Diphtheria was 2430 days, giving an average of 20.59 days.

The total length of residence of the 3 cases of Measles was 76 days, giving an average of 25.3.

The total length of residence of the 7 cases of Influenza was 129 days, giving an average of 18.42 days.

The case of Dysentery was in Hospital 27 days.

The case of Puerperal Fever was in Hospital 16 days.

The case of Observation Smallpox was in Hospital 12 days.

The case of Syphilis was in Hospital 1 day.

The total length of residence of the 3 cases of Phthisis was 116 days, giving an average of 38.6.

The total length of residence of the 4 cases of Bronchial Pneumonia was 156 days, giving an average of 39 days.

Table XXXIV.—ADMISSIONS TO LENNOX HOSPITAL, 1919.

Ages in Years	0-5		5-10		10-20		20-30		30-40		Over 40		Totals		Both
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
<i>Scarlet Fever</i> —															
Recovered	3	7	2	4	5	3	...	...	...	...	...	...	10	18	28
Remaining	1	1	...	1	2	...	...	...	...	...	...	...	4	2	6
Died	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>Enteric Fever</i> —															
Recovered	...	...	...	...	...	2	...	1	...	...	...	...	...	3	...
Died	...	...	...	...	...	...	...	...	1	...	...	...	1	...	4
<i>Diphtheria</i> —															
Recovered	22	14	25	20	6	10	2	5	...	1	...	...	55	50	105
Remaining	2	...	...	1	1	...	...	...	...	...	...	...	3	1	4
Died	4	2	...	2	1	...	...	...	...	...	...	...	5	4	9
<i>Measles</i> —															
Recovered	...	...	...	...	...	1	...	1	...	...	...	1	...	3	3
<i>Dysentery</i> —															
Recovered	...	...	1	...	...	...	...	...	...	...	...	...	1	...	1
<i>Smallpox</i> —															
Observed	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Recovered	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
<i>Puerperal Fever</i> —															
Recovered	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
<i>Influenza</i> —															
Recovered	1	...	...	...	...	1	...	1	...	...	2	2	4	3	7
<i>Bronchial Pneumonia</i> —															
Recovered	...	1	...	...	1	...	...	2	...	...	...	...	...	4	4
<i>Syphilis</i> —															
Died	...	...	...	...	...	...	...	1	...	...	...	...	...	1	1
<i>Phthisis</i> —															
Sent Home	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Died	...	...	...	...	...	...	...	...	...	1	...	...	1	2	3
Totals	34	25	28	33	16	17	3	11	2	2	2	4	85	92	177

VITAL STATISTICS.

The Birth Rate in 1919 was 13.7, which is the lowest on record. In the five years preceding the war (1910 to 1914) the Birth Rate averaged about 19.5, and in 1915 it fell to 18.3, then to 16.8, 16.7, and 15.5 respectively during the next three years. The Death Rate, however, has not been similarly affected, the rate for 1919 being 14.2, the mean rate for the previous nine years being approximately the same (14.4). The Death Rate in 1919 from the principal epidemic diseases (as defined by the Registrar-General) was only .26—a very low rate. From Tuberculosis the Death Rate was .70 in 1919, as compared with an average rate of 1.1 for the preceding four years. Detailed figures are given in Table XXXV. The population, as estimated, by the Registrar-General for the middle of the year 1919, is 11,424.

Table XXXIV.—WESTERN DISTRICT.

BIRTHS AND DEATHS REGISTERED DURING THE YEARS 1915-1919.

	1915	1916	1917	1918	1919
Registered Births (Corrected for Transcripts)	207	190	190	178	156
Birth Rate per 1000 of Population ...	18·3	16·8	16·7	15·5	13·7
Deaths from all Causes (Corrected for Transfers)	181	154	143	165	162
Death Rate per 1000 of Population ...	16·0	13·6	12·6	14·4	14·2
CAUSES OF DEATH					
*Enteric Fever ... ..	...	1	...	...	...
Typhus Fever ... ..	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...
*Measles	1	...	...	...	...
*Scarlet Fever ... ..	...	...	...	...	...
*Whooping-Cough	5	1	5	4	2
*Diphtheria and Croup ... ..	...	3	1	1	...
Influenza	3	4	...	3	4
Erysipelas	2	...	...	...	...
Phthisis, Pulmonary Tuberculosis ...	5	8	7	9	3
Tuberculous Meningitis	1	1	2	...	...
Abdominal Tuberculosis	1	4	1	5	3
Other Tuberculous Diseases	2	3	...	1	2
Cancer, Malignant Disease	13	13	12	10	22
Rheumatic Fever .. ..	...	...	...	...	...
Meningitis	4	2	...	...	3
Organic Heart Disease	36	21	22	22	20
Bronchitis	13	7	14	7	19
Pneumonia (all forms)	11	11	9	35	12
Other Diseases of Respiratory Organs ...	3	4	2	3	3
*Diarrhoea and Enteritis (under 2 years)	2	...	...	...	1
Appendicitis and Typhlitis	2	...	1	1	...
All Liver Diseases (not Malignant) ...	1	1	...	...	1
Other Diseases of Digestive System (under 2 years) ... ..	...	7	8	1	4
Nephritis and Bright's Disease	3	7	4	6	1
Puerperal Sepsis	1	...	...	...	...
Other Diseases and Accidents of Preg- nancy and Parturition ... ..	...	2	1	1	...
Congenital Debility and Malformation, including Premature Birth	8	10	7	4	5
Violent Deaths, excluding Suicide ...	4	5	6	6	4
Snicide	56	36	39	1	...
Other Defined Diseases	56	36	39	42	50
Diseases Ill defined or Unknown ...	4	3	2	3	3
Deaths under 1 year	17	17	13	9	22
Infantile Death Rate (Deaths under 1 year per 1000 Births)	82	89	68	51	141
Tuberculosis Death Rates	8	1·4	·9	1·3	·70
Phthisis only	·4	·7	·6	·8	·26
Principal Epidemic Diseases (those asterisked above)	·7	·4	·5	·4	·26

BURGH OF BRIDGE OF ALLAN.

VITAL STATISTICS.

The Registrar-General in his Returns estimates the population of the Burgh at the middle of 1919 as 2849. In my opinion, however, this is rather an under-estimate. In 1911 the census figure was 3121, and if there has been any decrease, I am certain that this figure has not fallen below 3000.

In Table (1) I give an abstract of the statistics of Births, Marriages, and Deaths for the years 1915, 1916, 1917, 1918, and 1919. It will be seen that in 1917 the Birth Rate had fallen to 8 per 1000, as compared with 13 per 1000 in 1915, while for the year 1919 the rate had recovered to 10.9. The Death Rates, as might be expected, are fairly high, a great proportion of the deaths being of people in the later periods of life who probably had come to Bridge of Allan for treatment. In the year 1919, for instance, the total number of deaths was 66, of which 31 were of persons over the age of 65. The Death Rate from all forms of Tuberculosis for 1919 was 1.76, the rate for Pulmonary Tuberculosis alone being 1.4. These two rates are practically similar to the rates for 1915, the rates for the intervening years being somewhat less. Owing to the small numbers involved, the infantile mortality rate (i.e., the deaths under one year per 1000 births) is rather fluctuating in character, being 211 in 1915, 86 in 1916, 130 in 1917, 37 in 1918, and 129 in 1919; but taking the figures for the five years together, it is found that the mean rate works out at 123.

Table (1) BRIDGE OF ALLAN.
VITAL STATISTICS FOR THE YEARS 1915-1919 (INCLUSIVE).

	1915	1916	1917	1918	1919
Births	38	35	23	27	31
Birth Rate	13.0	12.1	8.0	9.4	10.9
Marriages	15	17	16	14	19
Marriage Rate	5.1	5.9	5.5	4.9	6.7
Deaths (Corrected)	53	56	45	56	66
Death Rate	18.1	19.3	15.6	19.4	23.2
Death Rate from Phthisis	1.4	1.0	1.0	1.7	1.40
Death Rate from all Tuberculosis	1.7	1.7	1.0	1.0	1.76
Death Rate from Principal Epidemic Diseases	0.7	0.7	0.3	0.0	.35
Infantile Mortality Rate	211	86	130	37	129

CAUSES OF DEATH (Corrected for Transfers)

Enteric Fever ... ..	...	...	1	...	...
Typhus Fever ... ..	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...
Measles ... ..	...	...	...	...	...
Scarlet Fever	2	1	...	...	...
Whooping-Cough ... ..	...	...	...	...	1
Diphtheria and Croup ... ..	...	1	...	...	...
Influenza ... ..	...	...	...	2	3
Erysipelas ... ..	...	...	...	...	...
Phthisis, Pulmonary Tuberculosis	4	3	3	2	4
Tuberculous Meningitis ... ..	...	2	...	...	...
Abdominal Tuberculosis	1	..	...	1	...
Other Tuberculous Diseases ... ..	...	...	...	...	1
Cancer, Malignant Disease	2	7	2	9	4
Rheumatic Fever ... ..	...	...	...	...	...
Meningitis ... ..	...	...	1	2	...
Organic Heart Disease	5	3	5	11	6
Bronchitis	2	1	...	4	2
Pneumonia (all forms)	8	2	3	5	10
Other Diseases of Respiratory Organs ... ..	...	...	1	...	...
Diarrhea and Enteritis (under 2 years) ... ..	...	...	...	...	...
Appendicitis and Typhlitis	1	3	1	...	...
All Liver Diseases (not Malignant)	1	1	...	...	1
Other Diseases of Digestive System ... ..	...	2	2	1	5
Nephritis and Bright's Disease	1	4	3	2	3
Puerperal Sepsis ... ..	...	...	...	...	...
Other Diseases and Accidents of Pregnancy and Parturition ... ..	...	...	...	1	...
Congenital Debility and Malformation including Premature Birth ... ..	...	2	1	1	2
Violent Deaths, excluding Suicide	4	1	...	3	2
Suicide ... ..	...	1	...	...	...
Other Defined Diseases	21	19	21	12	22
Diseases Ill-defined or Unknown	1	3	1	...	..
All Causes	53	56	45	56	66

**Table (2) RETURN OF INFANTILE MORTALITY FOR THE YEAR
ENDING 31ST DECEMBER, 1919.**

CAUSE OF DEATH.			Under 1 Week	1, and under 2 Weeks	2, and under 3 Weeks	3, and under 4 Weeks	Total under 4 Weeks	4 Weeks, and under 3 Months	3, and under 6 Months	6, and under 9 Months	9, and under 12 Months	Total Deaths under 1 Year
All Causes { Certified ... { Uncertified			2	...	...	...	2	...	1	...	1	4
Smallpox ... ..			...	...	...	...	...	...	...	...	...	...
Chickenpox ... ..			...	...	...	...	...	...	...	...	...	...
Measles ... ..			...	...	...	...	...	...	...	...	...	...
Scarlet Fever ... ..			...	...	...	...	...	...	...	...	...	...
Whooping Cough ... ..			...	...	...	...	...	...	1	...	...	1
Diphtheria and Croup ... ..			...	...	...	...	...	...	...	...	...	...
Erysipelas ... ..			...	...	...	...	...	...	...	...	...	...
Tuberculous Meningitis ... ..			...	...	...	...	...	...	...	...	...	...
Abdominal Tuberculosis ... ..			...	...	...	...	...	...	...	...	...	...
Other Tuberculous Diseases ... ..			...	...	...	...	...	...	...	...	...	...
Meningitis (not Tuberculous) ... ..			...	...	...	...	...	...	...	...	...	...
Convulsions ... ..			...	...	...	...	...	...	...	...	...	...
Pneumonia (all forms) ... ..			...	...	...	...	...	...	...	...	...	...
Bronchitis ... ..			...	...	...	...	...	...	...	...	...	...
Laryngitis ... ..			...	...	...	...	...	...	...	...	...	...
Diarrhoea and Enteritis ... ..			...	...	...	...	...	...	...	...	...	...
Other Digestive Diseases ... ..			...	...	...	...	...	...	...	...	...	...
Congenital Malformations ... ..			...	...	...	...	...	...	...	...	...	...
Premature Birth			2	...	...	...	2	...	...	...	...	2
Atrophy, Debility, and Marasmus ... ..			...	...	...	...	...	...	...	...	...	...
Atelectasis ... ..			...	...	...	...	...	...	...	...	...	...
Injury at Birth ... ..			...	...	...	...	...	...	...	...	...	...
Suffocation, overlying ... ..			...	...	...	...	...	...	...	...	...	...
Syphilis ... ..			...	...	...	...	...	...	...	...	...	...
Rickets ... ..			...	...	...	...	...	...	...	...	1	1
All other Causes ... ..			...	...	...	...	...	...	...	...	...	...
Total			2	...	...	...	2	...	1	...	1	4

Net Births in the Year

{ Legitimate, 27.
 { Illegitimate, 4.

Net Deaths in the Year

{ Legitimate Infants, 4.
 { Illegitimate Infants, —.

INFECTIOUS DISEASES.

During the year 1919, the number of cases of infectious disease notified was 14, two being of Scarlet Fever, one of Diphtheria, one of Erysipelas, one of Ophthalmia Neonatorum, two of Malaria, six of Pulmonary Tuberculosis, and one of Non-Pulmonary Tuberculosis. Table (4) gives details as to the ages of the patients. As compared with previous years, these figures are very low. Table (3) shows the notifications for years 1915-1919 inclusive. In 1915 there was an outbreak of Scarlet Fever, chiefly among school children, the total cases for the year being 34. The years 1916 and 1918 were fairly normal, but in 1917 there was a little epidemic of Diphtheria—26 cases in all. The outbreak commenced in the month of August, when the schools were closed, and had nearly spent itself by the time the schools reopened. The first cases occurred in three families, four cases in one family, three in another, and two in another, accounting for 9 of the 26 cases. Where it was considered necessary throat swabs were taken from contacts, and in four cases in which the result was positive appropriate measures were taken to have the throats cleared of infection. All the actual Diphtheria cases were taken to Hospital, and thorough disinfection was carried out.

Pulmonary Tuberculosis. — Since notification of this disease became compulsory in 1912, the total number of cases notified has been 20. Of these, nine have proved fatal, and two have gone to reside in the districts of other local authorities, so that the number of patients under notice as at the end of 1919 was nine, four of whom were males and five females. Three of the nine were between the ages of 15 and 25 years, one between 25 and 45, four between 45 and 60, and one was over 60 years of age. Three of the patients are "insured persons." Sanatorium treatment was given to three of the nine patients, one of whom was in the institution for 12 weeks, the other two for 16 weeks. Two of the patients who were under sanatorium treatment are now well and working, the other being in a fair state of health, having improved slightly. Domiliciary treatment has been given for a long period to one patient who might be described as a chronic case. He had gone to reside in the Burgh with the object of improving his health. With the exception of one patient, who appears to be getting weaker, the rest of the cases are all fairly well.

Table (3) NUMBER OF CASES OF INFECTIOUS DISEASE NOTIFIED IN THE BURGH OF BRIDGE OF ALLAN DURING THE YEARS 1915, 1916, 1917, 1918, AND 1919.

Parish	Smallpox	Diphtheria and Membranous Croup	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Puerperal Fever	Cerebro-Spinal Fever	Acute Poliomyelitis	Phthisis Pulmonalis	Non-Pulmonary Tuberculosis	Ophthalmia Neonatorum	Malaria	Dysentery	Trench Fever	Acute Primary Pneumonia	Acute Influenzal Pneumonia
1915	1	3	34	...	...	...	...	...	...	2	2	...	...	...	...	...	...
1916	2	3	8	...	...	...	...	...	...	3	6	...	...	...	...	...	...
1917	26	2	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...
1918	4	4	2	...	...	...	...	...	2	1	...	...	...	...	...	...
1919	1	1	2	...	...	...	...	...	...	6	1	1	2	...	...	...	...

Table (4) BRIDGE OF ALLAN.

RETURN OF CASES OF INFECTIOUS DISEASE NOTIFIED, &c.,
DURING THE YEAR ENDING 31ST DECEMBER, 1919.

Population, Census 1911, 3,121. Population estimated to middle of 1919,
2,849.

DISEASE	NUMBER OF CASES COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH								
	At all Ages	At Age—Years						Cases removed to Hospital	Cases not removed to Hospital
		Under 1 Year	1 and under 5	5 and under 15	15 and under 25	25 and under 45	45 and under 65		

A.—Notified under the Infectious Disease Notification Act, 1889.

Typhoid or Enteric Fever	...	...	...	...	...	...	...	...	...
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...	...
Scarlet Fever or Scarlatina	2	...	...	1	1	...	...	2	...
Diphtheria and Membranous Croup	1	...	...	...	1	...	...	1	...
Erysipelas	1	...	...	...	...	...	1	...	1
Puerperal Fever ... ..	...	...	...	...	...	...	...	...	...
Cholera ... ..	...	...	...	...	...	...	...	...	...
Relapsing Fever ... ..	...	...	...	...	...	...	...	...	...
Continued Fever ... ..	...	...	...	...	...	...	...	...	...
Cerebro-Spinal Fever ...	...	...	...	...	...	...	...	...	...
Total	4	...	...	1	2	...	1	3	1

*B.—Notified in terms of Regulations made under Section 78 of the
Public Health (Scotland) Act, 1897.*

Ophthalmia Neonatorum	1	1	...	...	...	...	...	...	1
Malaria	2	...	...	...	...	2	...	...	2
Dysentery .. ..	...	...	...	...	...	...	...	...	...
Trench Fever ... ..	...	...	...	...	...	...	...	...	...
Acute Primary Pneumonia	...	...	...	...	...	...	...	...	...
Acute Influenzal Pneumonia	...	...	...	...	...	...	...	...	...
Pulmonary Tuberculosis...	6	...	...	...	2	...	3	1	5
Non-Pulmonary Tuber- culosis... ..	1	...	...	...	...	1	...	...	1
Total of A and B...	14	1	...	1	4	3	4	1	10

VACCINATION (SCOTLAND) ACT, 1907.

The number of conscientious objectors to vaccination in the Burgh during 1919, according to the Registrar's returns, was four.

SLAUGHTER-HOUSES AND MEAT INSPECTION.

There are two private slaughter-houses in the Burgh, and these have been kept under regular supervision.

FOOD AND DRUGS ACTS.

Under the Food and Drugs Acts, 14 samples were taken by the Sanitary Inspector during 1919. Of these, 8 were of sweet milk, 2 of margarine, 1 of coffee, 1 of tea, and 2 of whisky. Two of the samples of sweet milk were not quite genuine, but after satisfactory explanation by the vendor it was not considered necessary to take proceedings. The two whisky samples were not up to strength, and the cases were brought to the notice of the Food Control Department, who took the matter up.

FACTORY AND WORKSHOP ACT.

The workshops in the Burgh have been kept under supervision, and it has not been found necessary to take any proceedings. They are generally well kept.

BURGH OF DENNY AND DUNIPACE.

VITAL STATISTICS.

The census of 1911 gave the population of the Burgh as 5164, and for the year 1919 the Registrar-General estimates is at 4771. This is lower than the Police Census, which gives the population as 4930.

Table (5) gives the figures for the years 1915 to 1919 inclusive with regard to Births, Marriages, and Deaths. As in other places, there was a great fall in the Birth Rate during the years of war; thus, in 1915 the rate was 26.3, falling to 24.2 in 1916. In 1917 it was down to 17.8. For the year 1918 the rate was 25.1, and in 1919 it was nearly back to its pre-war level. The Death Rates for 1918 and 1919 were slightly above the normal—that for 1917 being well below the average. The Death Rate from Phthisis (Pulmonary Tuberculosis) in 1919 was .84, as compared with an average rate of 1.1 for the four preceding years. From the principal epidemic diseases as defined by the Registrar-General, the Death Rate was .84 in 1919, as compared with 3.3 in 1918, 1.5 in 1917, and 1.4 in 1916. The Infantile Mortality Rate (that is, deaths under one year per 1000 births) for 1919 was 110. Taking the five years 1915-1919 together, the Infantile Death Rate is 95.

INFECTIOUS DISEASE.

Table (7) shows the number of notifications received, in age groups for the year 1919. The total number of cases, excluding eight cases of Pulmonary Tuberculosis, 8 cases of Malaria, and one acute Primary Pneumonia, was 32. The two last-mentioned diseases, amongst others, were made compulsorily notifiable during the year. Of the 32 cases, 20 were of Scarlet Fever, 7 of Diphtheria, and 5 of Erysipelas. Only 5 of the Scarlet cases had occurred by the end of October, the other 15 being notified in November and December.

There has been no serious prevalence of infectious disease in the Burgh since 1915, when there were 54 cases. The notification figures (exclusive of Tuberculosis) for the past ten years are as follows: — 1919, 32; 1918, 10; 1917, 21; 1916, 24; 1915, 54; 1914, 35; 1913, 22; 1912, 16; 1911, 29; 1910, 51. The detailed figures for 1915-1919 are given in Table (8).

Table (5) DENNY AND DUNIPACE.
VITAL STATISTICS FOR THE YEARS 1915-1919 (INCLUSIVE).

	1915	1916	1917	1918	1919
Births	128	117	86	121	145
Birth Rate	26.3	24.2	17.8	25.1	30.4
Marriages	31	19	19	34	32
Marriage Rate	6.4	3.9	3.9	7.1	6.7
Deaths (Corrected)	68	72	56	81	72
Death Rate	14.0	14.9	11.6	16.8	15.1
Death Rate from Phthisis	1.2	1.4	0.6	1.2	.84
Death Rate from all Tuberculosis	1.8	1.7	1.5	2.1	1.68
Death Rate from Principal Epidemic Diseases	0.8	1.4	1.5	3.3	.84
Infantile Mortality Rate	102	94	93	174	110

CAUSES OF DEATH (Corrected for Transfers)

Enteric Fever ... ..	...	1	...	1	...
Typhus Fever ... ..	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...
Measles ... ..	...	1	3	9	...
Scarlet Fever	1	...	...	...	...
Whooping-Cough	2	4	1	3	2
Diphtheria and Croup ... ..	...	...	2	1	...
Influenza ... ..	...	1	...	2	...
Erysipelas ... ..	...	...	...	...	...
Phthisis, Pulmonary Tuberculosis	6	7	3	6	4
Tuberculous Meningitis	3	...	2	2	1
Abdominal Tuberculosis ... ..	...	...	1	2	1
Other Tuberculous Diseases ... ..	...	1	1	...	2
Cancer, Malignant Disease	5	6	7	4	5
Rheumatic Fever ... ..	...	1	...	...	...
Meningitis ... ..	...	...	2	2	1
Organic Heart Disease	3	5	3	5	8
Bronchitis	7	3	...	5	4
Pneumonia (all forms)	1	4	5	6	11
Other Diseases of Respiratory Organs ... ..	...	3	1	...	1
Diarrhea and Enteritis (under 2 years)	1	1	1	2	2
Appendicitis and Typhlitis ... ..	...	...	...	1	1
All Liver Diseases (not Malignant)	1	...	...	...	...
Other Diseases of Digestive System	1	1	1	2	1
Nephritis and Bright's Disease ... ..	...	4	1	1	...
Puerperal Sepsis ... ..	...	...	...	...	...
Other Diseases and Accidents of Pregnancy and Parturition ... ..	...	1	...	2	1
Congenital Debility and Malformation, including Premature Birth	6	5	2	10	11
Violent Deaths, excluding Suicide	6	3	3	1	3
Snicide ... ..	...	...	...	...	...
Other Defined Diseases	22	19	15	13	11
Diseases Ill-defined or Unknown	3	1	2	1	2
All Causes	68	72	56	81	62

**Table (6) RETURN OF INFANTILE MORTALITY FOR THE YEAR
ENDING 31ST DECEMBER, 1919.**

Net Deaths from stated causes at various ages under 1 year of age.

CAUSE OF DEATH.			Under 1 Week	1, and under 2 Weeks	2, and under 3 Weeks	3, and under 4 Weeks	Total under 4 Weeks	4 Weeks, and under 3 Months	3, and under 6 Months	6, and under 9 Months	9, and under 12 Months	Total Deaths under 1 Year
All Causes	{ Certified ... Uncertified	5	1	1	2	9	1	2	2	...	14	
		2	...	...	...	2	...	...	...	...	2	
{	Smallpox	...	...	...	...	...	...	...	...	...	...	...
	Chickenpox	...	...	...	...	...	...	...	...	...	...	...
{	Measles	...	...	...	...	...	...	...	...	...	...	...
	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...
{	Whooping Cough	...	...	...	...	...	...	...	...	1	...	1
	Diphtheria and Croup	...	...	...	...	...	...	...	...	...	...	...
{	Erysipelas	...	...	...	...	...	...	...	...	...	...	...
	Tuberculous Meningitis	...	...	...	...	...	...	...	...	...	...	...
{	Abdominal Tuberculosis	...	...	...	...	...	...	...	...	...	...	...
	Other Tuberculous Diseases	...	...	...	...	...	...	...	...	...	...	...
{	eases	...	...	...	...	...	...	...	...	...	...	...
	Meningitis (not Tuberculous)	...	...	...	...	...	...	...	...	...	...	...
{	Convulsions	...	...	...	...	...	...	...	...	...	...	...
	Pneumonia (all forms)...	...	...	...	...	...	...	...	...	...	...	...
{	Bronchitis	...	...	1	1	2	...	...	...	...	...	2
	Laryngitis	...	...	...	...	...	...	...	...	...	...	...
{	Diarrhoea and Enteritis	...	...	...	1	1	...	1	...	...	...	2
	Other Digestive Diseases	1	1	...	...	2	...	...	...	...	...	2
{	Congenital Malformations	...	...	...	...	...	...	...	...	1	...	1
	Premature Birth	4	...	...	...	4	...	...	...	...	...	4
{	Atrophy, Debility, and Marasmus	2	...	...	...	2	1	...	...	...	...	3
	Atelectasis	...	...	...	...	...	...	...	...	...	...	...
{	Injury at Birth...	...	...	...	...	...	...	...	...	...	...	...
	Suffocation, overlying...	...	...	...	...	...	...	...	...	...	...	...
{	Syphilis	...	...	...	...	...	...	...	...	...	...	...
	Rickets	...	...	...	...	...	...	...	...	...	...	...
{	All other Causes	...	...	...	...	...	...	1	...	...	...	1
	Total	7	1	1	2	11	1	2	2	...	16	

Net Births in the Year	{ Legitimate, 136. Illegitimate, 9.
Net Deaths in the Year	{ Legitimate Infants, 16. Illegitimate Infants, —.

Table (7) DENNY.

RETURN OF CASES OF INFECTIOUS DISEASE NOTIFIED, &c.,
DURING THE YEAR ENDING 31ST DECEMBER, 1919.

Population, Census 1911, 5164. Population estimated to middle of 1919,
4771.

DISEASE	NUMBER OF CASES COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH									
	At all Ages	At Age—Years							Cases removed to Hospital	Cases not removed to Hospital
		Under 1 Year	1 and under 5	5 and under 15	15 and under 25	25 and under 45	45 and under 65	65 and upwards		
Typhoid or Enteric Fever	...	...	...	...	...	...	...	...	...	...
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...	...	...
Scarlet Fever or Scarlatina	20	...	6	9	5	...	...	...	20	...
Diphtheria and Membranous	...	...	...	...	...	...	...	...	...	...
Croup	7	1	1	5	...	...	...	...	7	...
Erysipelas	5	...	...	...	...	3	1	1	...	5
Puerperal Fever ... ..	...	...	...	...	...	...	...	...	...	...
Cholera ... ..	...	...	...	...	...	...	...	...	...	...
Relapsing Fever ... ..	...	...	...	...	...	...	...	...	...	...
Continued Fever ... ..	...	...	...	...	...	—	...	...	...	...
Cerebro-Spinal Fever ...	...	...	...	...	...	...	...	...	...	...
Total	32	1	7	14	5	3	1	1	27	5

A.—Notified under the Infectious Disease Notification Act, 1889.

B.—Notified in terms of Regulations made under Section 78 of the
Public Health (Scotland) Act, 1897.

Ophthalmia Neonatorum	...	...	...	...	...	...	...	...	...	...
Malaria	8	...	...	...	...	8	...	...	...	8
Dysentery ... ..	...	...	...	...	...	...	...	...	...	...
Trench Fever ... ..	...	...	...	...	...	...	...	...	...	...
Acute Primary Pneumonia	1	...	...	...	...	1	...	...	...	1
Acute Influenzal Pneumonia	...	...	...	...	...	...	...	...	...	...
Pulmonary Tuberculosis...	8	...	1	1	3	2	1	...	3	5
Non-Pulmonary Tuber- culosis ... ..	...	...	...	...	...	...	...	...	...	...
Total of A and B ...	49	1	8	15	8	14	2	1	30	19

Table (8) NUMBER OF CASES OF INFECTIOUS DISEASE NOTIFIED WITHIN THE BURGH OF DENNY AND DUNIPACE
DURING THE YEARS 1915 TO 1919 (INCLUSIVE).

	Smallpox	Diphtheria and Membranous Croup	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Puerperal Fever	Cerebro-Spinal Fever	Tuberculosis		Ophthalmia Neonatorum	Malaria	Dysentery	Trench Fever	Acute Primary Pneumonia	Acute Influenzal Pneumonia
										Pulmonary	Non Pulmonary						
1915	12	41	...	...	...	...	1	6	4	...	...	...	...	...	...
1916	...	3	7	12	...	2	...	...	...	6	1	...	...	...	...	...	...
1917	...	13	2	6	...	...	...	...	...	10	2	...	...	...	...	...	...
1918	...	3	3	3	...	1	...	...	...	7	3	...	...	...	...	...	...
1919	...	7	5	20	...	...	...	...	...	8	...	...	...	...	...	1	...

With regard to the year 1919, the 20 cases of Scarlet Fever and the seven cases of Diphtheria were all treated in Hospital. None of the cases proved fatal

The eight Malaria cases were notified by the Deputy Commissioner, Pensions Board, the disease having been contracted in each case during service in the Army. Most of the patients were able to attend to their duties, but were subject to intermittent attacks.

Tuberculosis—Pulmonary.—The number of cases notified since 1912, is 69. Of these 35 have died, and 17 have gone to reside in other districts, leaving 17 notified cases within the Burgh. Nine of the 17 are males and 8 are females.

The ages of the patients may be grouped as follows :—

	Under 5 years	5 to 15 years	15 to 25 years	25 to 45 years	45 to 60 years	60 years and over
Males ...	1	1	2	4	1	...
Females ...	...	1	3	3	1	...
Totals ...	1	2	5	7	2	...

Of the 9 male patients, 6 are “insured persons” under the National Insurance Act, and of the 8 female patients, 2 are insured persons.

Seven of the male patients and two female patients have received treatment in sanatoria for varying periods, the usual period being 12 weeks. In nearly every case such sanatorium treatment has been followed by good results, five of the patients being now well and working. I have had a visitation made to all the patients in order to ascertain briefly how they were keeping, and the following is a note of the result of the inquiry :—

	Well and Working	Improved	Fairly Well	Worse	Still in Sanatorium.
Patients who have undergone Sana- torium Treatment	5	1	2	...	1
Ordinary Home Treatment ...	6	...	2	...	...

Only one of the existing patients has had domiciliary treatment, which he received after returning from the sanatorium.

Out of the 69 cases notified since 1912, 28 have received varying periods of treatment in sanatoria, or other similar institution, with or without a further period of domiciliary treatment. In addition to these, 13 patients received a period of domiciliary treatment.

HOUSING.

Towards the end of the war the Local Government Board began to urge Local Authorities to make preliminary arrangements with regard to Housing Schemes in order that on the conclusion of peace there might be as little delay as possible in having such schemes carried into effect. The idea of the Local Authority assisting the carrying through of Housing Schemes for the people with a certain amount of financial assistance from the Government was so new that Local Authorities in many instances were extremely cautious in entering upon such undertakings.

On my representation the Town Council of Denny took up the matter, and resolved in the first instance to arrange for a scheme for 30 houses. Afterwards, as a consequence of the Housing Survey initiated by me the Town Council resolved to increase the number of houses to be built under the Scheme to 100.

The results of the Housing Survey are given in Table (9).

Table (9) STATEMENT OF RESULTS OF INQUIRY INTO HOUSING CONDITIONS IN THE BURGH OF DENNY.

Condition of Houses.	NUMBER OF APARTMENTS.				
	One	Two	Three	Four and over	Total
(1) Houses fit for Human Habitation	10	146	102	119	377
(2) Houses that can be made fit for Human Habitation	43	282	113	59	497
(3) Houses that can not be made fit for Human Habitation	51	121	16	3	191
Total	104	549	231	181	1065
Number of New Houses required to replace (3)					191
Also, say one-half of (1) and (2) one-apartment houses when these are converted into two-apartment houses					26
And, say one-third of (1) and (2) two-apartment houses when these are converted into three-apartment houses... ..					143
Total Number of New Houses required to replace existing houses and to raise the general housing standard					360

The Burgh of Denny is quite in the forefront with regard to its Housing Schemes. Since the beginning the Town Council have taken a very serious view of their responsibilities in connection with the provision of proper housing for the working classes, and as a result of further correspondence with the Local Government Board, the Council now aim at the erection of no fewer than 200 houses.

FOOD AND DRUGS ACTS.

The Sanitary Inspector of the Burgh took eight samples for analysis under the Food and Drugs Acts. All the samples were certified to be genuine.

FACTORY AND WORKSHOP ACT.

The number of factories in the Burgh is 24, and there are 25 workshops, with the latter of which the Health Department is more particularly concerned. In all, 60 visits of inspection were made 20 of which were inspections of workshops. No statutory notices were necessary, the workshops being conducted on satisfactory lines. The total employees in the 25 workshops numbered 63, 14 of whom were women, and 14 young persons or children.

VACCINATION (SCOTLAND) ACT, 1907.

The number of conscientious objectors under the above Act reported by the Registrars for the year 1919 was 58, equal to 40 per cent. of the number of children born during the year. Since the end of the year a great number of the inhabitants of the Burgh have availed themselves of the free vaccination offered by the Local Authority but even yet there must be hundreds who have not been protected against Smallpox.

COMMON LODGING-HOUSES.

The three common lodging-houses have been kept under surveillance, and as a rule they are found to be conducted in a satisfactory manner.

SLAUGHTER HOUSE AND MEAT INSPECTION.

The Public Slaughter House is under the supervision of a Superintendent employed by the Local Authority. A whole carcase of a cow and 350lb. of partial carcases were condemned on account of Tuberculosis. In addition a quantity of mutton (80lb.) had to be condemned owing to the fact that while a number of sheep were on the way to the market, a motor lorry ran into them, killing seven and so badly damaging others, that when killed a great proportion of the mutton was found unfit for the food of man.







